

Bridging Risk, Regulation, and Behavior: Understanding Credit Tolerance Behavior in Crisis-Era Banking

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Abstract

The COVID-19 pandemic posed unprecedented challenges to the banking sector in Bali, exposing critical gaps between regulatory intentions and actual credit restructuring practices. This study examines the innovative concept of credit restructuring tolerance behavior (CRTB), which provides a behavioral framework for comprehending account officers' (AOs) discretion in credit restructuring decision-making amid crises, encompassing both psychological tendencies and organizational limitations. This study, grounded in an integrative framework of social cognitive theory and the theory of planned behavior, investigates the influence of risk management knowledge, self-efficacy, herding behavior, standard operating procedures (SOPs), and regulations on CRTB, while examining how gender and organizational culture affect decision-making flexibility. To this end, a quantitative survey involving 290 AOs from 168 banks in Bali was conducted. Data were analyzed using structural equation modeling with a second-order embedded two-stage approach, supported by Mann–Whitney U tests for group comparisons and robustness checks. The findings indicate that risk management knowledge and self-efficacy positively influence CRTB, whereas herding behavior and rigid SOPs have a negative effect. Meanwhile, gender and cultural dimensions have significantly different impacts, with women and employees in pragmatic cultures demonstrating greater adaptive capacity. These results underscore the critical interplay between internal capacities and external structures. Enhancing employee knowledge, building employee confidence, and revising SOPs to allow situational discretion can substantially improve the resilience of the banking sector. Based on the findings, policy-makers are encouraged to adopt non-coercive, flexible regulatory frameworks that empower front-line employees to respond effectively during economic disruptions.

Keywords: Tolerance Behavior; Credit Restructuring; Banking, Economic Crisis; COVID-19.

1. Introduction

The COVID-19 pandemic has had a major impact on the economic decline in various sectors. The tourism sector is one of the sectors that has been greatly affected because this sector relies on tourist visits with high mobility. Bali, which is a world tourist destination, has also experienced a very significant economic decline, so that the community and tourism business actors have experienced a decrease in income. Those who obtained credit from the bank were unable to pay their obligations.

Indonesian Financial Services Authority (Otoritas Jasa Keuangan, abbreviated as OJK), a national regulatory institution, has urged banks to proactively assist debtors; however, in practice, many banks have not responded accordingly (OJK, 2020). Cases such as the rejection of credit restructuring applications from debtors facing liquidity problems (Jawa Pos, 2021) and the selection of credit restructuring schemes in Bali that failed to comply with Article 53 of the Financial Services Authority Regulations (Peraturan Otoritas Jasa Keuangan, abbreviated as POJK) No. 40/POJK.03/2019 (Utami & Yustiawan, 2021) highlight discrepancies between policy directives and implementation, which have led to an increase in non-performing loans (NPLs), rising from 3.56% at the end of 2019 to 3.8% in 2020 (Bank Indonesia, 2020), as shown in Figure 1, and a decline in banking profitability (Devi et al., 2020).

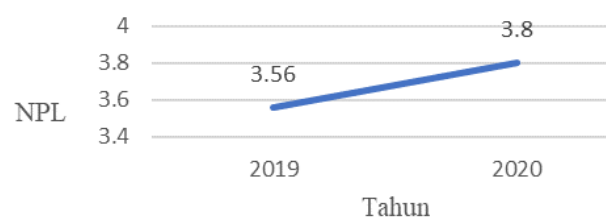


Fig. 1: NPL Condition (2019–2020; Bank Indonesia, 2020).

While these regulations apply nationwide, Bali received a special policy extension under POJK due to its status as a major tourism hub and the severe economic impact it experienced during the COVID-19 pandemic. As a major tourist destination, Bali has prioritized an extension of its credit restructuring policy (POJK, 2022). This special extension was granted due to the instability of the regional banking sector, as indicated by the increasing number of NPLs. Credit restructuring is one alternative solution that debtors can submit to the bank. The credit restructuring process requires tolerance from banks to provide credit payment schemes that can ease the burden on debtors.

“Tolerance” refers to an individual’s acceptance of differing viewpoints and tendency to seek the best possible solutions to reconcile these differences (Doorn, 2012). The concept of tolerance was originally limited to contexts of religion, but it has expanded into the political, social, and economic spheres (Allport, 1954). In the domain of economic tolerance, the aspect of tolerance to credit restructuring, which has been shown to support economic growth (Tedeschi et al., 2021), deserves further exploration. When accompanied by greater institutional tolerance, expansive policies in credit restructuring can be highly beneficial for economic growth, particularly during crises such as the global financial crisis in 2008 or the COVID-19 pandemic (Tedeschi et al., 2021).

Tolerance may occur when society establishes certain standards, rules, or codes of conduct to govern it. These standards are referred to as “conformity tolerance” (Allport, 1954). In this study, credit restructuring tolerance behavior (CRTB) falls under the category of act tolerance, specifically, conformity tolerance. That is, the observed behavior reflects tolerance within the boundaries of the regulatory frameworks. Although tolerance behavior has been examined by Liberati et al. (2021), their focus was primarily on topics of religion, homosexuality, and multiculturalism. However, tolerance can also emerge in the context of credit restructuring, as the process involves social interactions between bank employees and debtors.

CRTB is grounded in two legal foundations: POJK on risk management and consumer protection. Emphasizing the idea of independence, the POJK on risk management calls for an impartial and fair assessment of risks free from bias against either the bank or the debtor (OJK, 2016). From an institutional risk-control viewpoint, this idea strengthens fairness in decision-making. On the other hand, the POJK on consumer protection emphasizes empathy, openness, and the duty to take the consumer’s financial capacity into account, framing justice from the debtor’s perspective (OJK, 2023). Though both laws fit under the more general concept of fairness, they differ in orientation: one stresses prudential precautions for banks, while the other defends consumer rights. This difference shows a dual framework—prudential fairness versus empathic fairness—often seen in behavioral regulation design (Fahrurrozi, 2021). Meanwhile, the POJK on consumer protection mandates that financial service providers should consider consumers’ needs and financial capabilities (POJK, 2023), reflecting the attitudes of empathy and respect. These legal foundations highlight the role of empathy, respect, and prudent risk-taking in assessing CRTB. Analyzing CRTB is essential due to the persistent gap between government expectations and the actual implementation of credit restructuring practices in the field.

Few studies explore CRTB from the psychological perspective of bank employees, reflecting a key gap that this study seeks to address. A cognitive approach is appropriate for examining CRTB because cognitive theory emphasizes environmental conditions while focusing on behaviors shaped by internal processing (Yadnyana et al., 2022) and individual emotions. Social cognitive theory (SCT), which falls under the cognitive approach, identifies two determinants influencing behavior: personal and environmental factors (Bandura, 2001). However, SCT does not account for the influence of social background, introduced in the theory of planned behavior (TPB) (Ajzen, 1991).

The personal factors that influence CRTB include risk management knowledge, self-efficacy, and herding behavior. Given the inherent risks associated with future outcomes, risk management is a critical concern in the credit restructuring process. Self-efficacy (i.e., confidence in one’s ability to manage risk) plays an essential role in shaping individual behavior (Bandura, 1977; Herawati et al., 2018). Bandura (1977) proposed that individual behavior can be influenced through imitation or herding. Anxiety about potential losses resulting from independent credit restructuring decisions can cause employees to exhibit intolerant behavior, often imitating the decisions of others, even when debtor conditions differ.

Meanwhile, the environmental factors influencing individual behavior include standard operating procedures (SOPs), regulations (Bao et al., 2019; Nawawi & Salin, 2018), and organizational culture (Lei et al., 2019; Assens-Serra et al., 2021). Ideally, all the activities carried out by bank employees should adhere to established SOPs and regulations. Therefore, in this study, regulations were treated as control variables. Meanwhile, the customer-oriented organizational culture dimensions proposed by Hofstede and Minkov (2010; pragmatic and normative cultures) are particularly relevant in the context of credit restructuring. Pragmatic cultures prioritize customer satisfaction and outcome-based flexibility, allowing employees greater discretion in adapting procedures to specific situations. In contrast, normative cultures emphasize strict adherence to rules, regulations, and internal codes, limiting individual flexibility and encouraging uniformity. Finally, individual social background factors, such as gender, also play a meaningful role in shaping tolerance attitudes (Fisher & Yao, 2017; Nahar, 2017; Wasiuzzaman & Edalat, 2016). Notably, women are generally perceived to be more agreeable and accommodating, whereas men are more often perceived as exhibiting behaviors such as asserting dominance and rejecting others’ requests (Nurhayati, 2014; Eagly & Revelle, 2022).

This study addresses the limitations in Nawawi and Salin’s (2018) study, using questionnaire data to examine the influence of SOPs on individual behavior, in line with their recommendation. Previous studies by Yumaheni and Sukranatha (2021), as well as Regon et al. (2015), have merely indicated that human resource competencies can trigger challenges in credit restructuring implementation, relying on an empirical legal approach. In contrast, this study uses a quantitative approach to examine the relationship between risk management knowledge and CRTB. These distinctions define the research gap that this study aims to address.

The conceptual findings of this study can serve as a reference for bank management in monitoring and managing employee readiness for implementing credit restructuring policies effectively by balancing tolerance with risk mitigation. Moreover, banking management and regulators can ensure that SOPs and regulations are optimally structured to foster tolerance in credit restructuring, which is critical for promoting economic growth during times of crisis while complying with regulatory constraints adapted to situational demands. The findings may also serve as a strategic foundation for supporting the economy in the event of future economic crises.

Based on the above discussion, the following research questions are formulated in this study: “Do risk management knowledge, self-efficacy, herding behavior, SOPs, and regulations influence CRTB?” and “Are there differences in CRTB between male and female employees, and between those working in pragmatic versus normative organizational cultures?”

2. Literature review

2.1. Credit restructuring tolerance behaviour

CRTB falls under the category of conformity tolerance, which means that tolerance occurs because society has established standards, rules, or codes of conduct that govern acceptance. Tolerance emerges when individuals strive to comply with existing regulations (Allport, 1954).

CRTB can be interpreted as the response or reaction of bank employees, shaped by attitudes of empathy, respect, and courage to take the maximum risk that can be absorbed by the bank's capital when processing credit restructuring applications from debtors. It also involves seeking the best alternative solutions for both parties in the process of reorganizing the debtor's debt structure while still adhering to government regulations and banking policies.

2.2. Risk management knowledge

Risk management knowledge can be viewed as a systematic understanding of identifying, analyzing, and responding to risks. Risk management practices carried out by individuals are expected to support sustainable risk management based on current and relevant knowledge (Durst et al., 2020). Knowledge is recognized as a key component that influences behavioral intention (Kim, 2019). Enlightened tolerance emphasizes the importance of exploring one's knowledge in determining attitudes and tolerance behaviors toward the conditions of others (Stebbins, 2017).

2.3. Self-efficacy

Self-efficacy involves confidence in one's ability to regulate and carry out the necessary actions to manage a situation (Bellibas & Liu, 2017). Self-efficacy refers to the belief in one's capabilities to mobilize the motivation, cognitive resources, and actions required to meet specific situational demands (Tepper, 2018). It is also viewed as the level of confidence in one's ability to perform a particular task and achieve a desired outcome (Bandura, 1977; Gallagher, 2012; Alden et al., 2014; Seburg et al., 2017).

2.4. Herding

Herding is an attitude in which an individual, influenced by emotions, follows the decisions of others rather than conducting their independent analysis (Bihari et al., 2022). Herding occurs because of internal anxiety that an independently made decision may lead to loss. Gupta et al. (2014) stated that herding behavior is driven by the belief that decisions made by the majority are unlikely to be wrong.

2.5. SOPs

SOPs are the most important and fundamental elements to be established within an internal control system across all levels of an organization (upper, middle, and lower levels), both vertically and horizontally (COSO, 2013). SOPs are designed to facilitate effective and efficient operational activities, ensure high-quality internal and external reporting, and guarantee compliance with laws and regulations. SOPs are reflected in job manuals that serve as guidelines for employees in performing routine tasks in the workplace, as reference points for employees when interacting with external parties, and as tools to effectively address key issues.

2.6. Regulation

This study uses regulation as a control variable, based on the rationale that has been theoretically and empirically proven to influence individual behavior (Bandura, 1989; Bao et al., 2019). Traditionally, regulation is viewed as a coercive mechanism, but from a behavioral science perspective, emphasis is placed on the importance of establishing a system, rules, and mechanisms that do not involve coercion but still guide individuals to comply with regulations through informed choice. Behavioral science also highlights the importance of regulations based on data and facts, ensuring that the regulations created align with the social conditions of the regulated community (Fahrurrozi, 2021).

2.7. Organizational culture

One of the dimensions of organizational culture related to customer orientation is to be studied in the banking sector, as it is one of the institutions that provides financial services to the public. Hofstede & Minkov (2010) identified two types of company culture based on customer orientation. Pragmatic culture focuses on meeting customer needs and prioritizes results over strict adherence to rules. In contrast, normative culture emphasizes following regulations, with less attention given to outcomes.

2.8. Gender

Differences in sex or gender lead to differences in intrinsic characteristics. Women are psychologically perceived as being more likely to yield, agree, conform, and please others, whereas behaviors such as imposing, dictating, interrupting, instructing, and rejecting others' requests are considered masculine traits that are more commonly exhibited by men (Nurhayati, 2014; Eagly & Revelle, 2022). Women are also perceived as having psychological traits that make them more easily influenced and persuaded to change their beliefs. Additionally, women are said to be more willing to conform than are men (Gino et al., 2015).

2.9. Conceptual framework and hypothesis development

Examining CRTB among account officers in the banking sector, this paper combines SCT with the TPB. According to SCT, the dynamic interaction between personal elements (e.g., cognitive skills, efficacy), environmental influences (e.g., organizational systems), and emotional responses shapes behavior (Bandura, 2001; Bandura, 2002). TPB, on the other hand, includes the aspect of social backdrop and subjective standards shaping behavioral intention (Ajzen, 1991; Ajzen, 2005). The combination of these two theories provides a more complete view, therefore recognizing that social identity (e.g., gender) and cultural norms ingrained in organizational settings also influence tolerance in credit restructuring choices in addition to competence or environment. Table 1 presents the theoretical location of each construct employed in this study, which maps each variable to its theoretical root backed by pertinent literature. The framework divides the independent variables into three main groups based on SCT and TPB: cognitive factors, affective factors, and organizational environmental factors, as shown in Figure 2.

Based on the above framework and supporting theoretical literature, the following hypotheses are formulated and tested:

H1: Risk management knowledge positively affects CRTB.

H2: Self-efficacy positively affects CRTB.

H3: Herding behavior negatively affects CRTB.

H4: SOPs negatively affect CRTB.

H5: There is a significant difference in CRTB between employees working in pragmatic and normative organizational cultures.

H6: There is a significant difference in CRTB between male and female employees.

Table 1: Conceptual Mapping of Constructs to Theoretical Foundations

Construct	Theory Base	Rationale for Inclusion
Risk Management Knowledge	SCT	Cognitive personal capability influencing behavior (Bandura, 2001; Kim, 2019).
Self-Efficacy	SCT	Core SCT component reflecting belief in one's ability to act effectively (Bandura, 1977; Çetin & Aşkun, 2018).
Herding Behavior	SCT (affective)	Emotional anxiety leading to conformity, modeled in SCT's affective domain (Bandura, 1989; Jain et al., 2020).
Standard Operating Procedures (SOPs)	SCT (environmental)	Environmental structure regulating behavior (Nawawi & Salin, 2018; Bandura, 2002).
Regulation	SCT (environmental)	Non-coercive behavioral guides influence voluntary compliance (Bao et al., 2019; Fahru-rozi, 2021).
Organizational Culture	SCT (environmental context)	Shared values shape behavioral adaptation; supports SCT's emphasis on context (Hofstede & Minkov, 2010; Lei et al., 2019)
Gender	TPB (social background)	TPB accounts for social norms and background characteristics (Ajzen, 1991; Wasiuzzaman & Edalat, 2016; Eagly & Revelle, 2022).

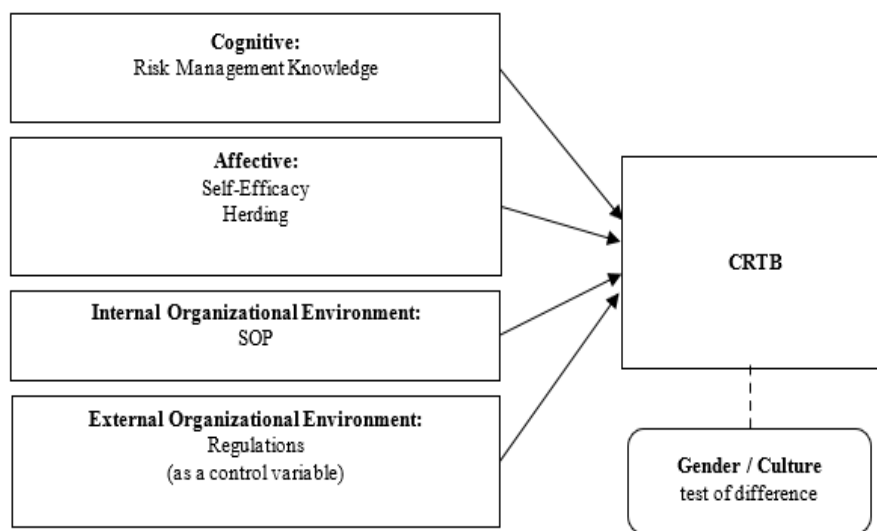


Fig. 2: Research Conceptual Framework.

3. Method

This study was conducted in banks operating in Bali and used a quantitative approach. The target institutions were conventional commercial and rural banks (Bank Perekonomian Rakyat; BPR) registered with the Financial Services Authority in 2024, totaling 172 banks. Initial observations revealed that three commercial banks and one BPR declined to share information related to credit restructuring, reducing the number of participating institutions to 168. Moreover, Islamic banks were excluded from the study due to their distinct regulatory, organizational, and cultural characteristics. A key distinction is that Islamic banks can conduct credit restructuring by replacing an existing financing product with another that complies with the customer's conditions. Additionally, Islamic banks are required to adhere to Sharia principles, which are supervised by the Sharia Supervisory Board.

The primary data were collected directly through responses to a structured questionnaire. The participants responded to items posed by the researchers, and their answers were converted into numerical values using a five-point Likert scale. For constructs such as risk management knowledge, self-efficacy, herding, SOPs, regulations, and organizational culture, responses were scored as follows: 1 = "strongly disagree," 2 = "disagree," 3 = "neutral," 4 = "agree," and 5 = "strongly agree" (for positively worded items). For CRTB-related items, responses were scored as 1 = "never," 2 = "rarely," 3 = "occasionally," 4 = "often," and 5 = "always."

The target population included employees of conventional commercial banks and BPRs in Bali Province who were involved in the initial negotiation and credit analysis process. These individuals are referred to as account officers (AOs). Owing to the lack of complete population data, convenience sampling was used to determine the sample size. This technique involves determining the minimum required sample size, followed by selecting a representative number of samples that do not fall below the minimum threshold. Based on the number of variables used in the study, the minimum required sample size was estimated based on the number of study variables, using the following formula: 8 variables \times 10 = 80 respondents (Hair et al., 2021).

A quota sampling method was applied to ensure distribution across different banking groups. The total sample size was 336 respondents, representing all 168 banks. Each bank contributed two AOs to the sample. Table 2 presents the study variables. All participants were informed of the study's purpose, procedures, and the voluntary nature of their participation. Owing to the sensitivity of the topic and cultural norms regarding formal documentation, verbal informed consent was obtained from all participants. Access to respondents was coordinated by bank managers; researchers did not engage with participants directly to ensure comfort and confidentiality. This verbal consent process and recruitment method were reviewed and approved by the institutional examination board during the proposal defense and colloquium.

Table 2: Study Indicators

No.	Source	Variable	Indicator
1	(Kim, 2019)	Risk Management Knowledge	Risk awareness, risk prevention efforts, and response to risks
2	(Chen & Volpe, 1998)	Self-Efficacy	Self-esteem, initiation, persistence or effort, general self-evaluation
3	(Jain et al., 2020)	Herding	Dependence on advice, recommendations, or opinions of others; dependence on news references
4	(Nielsen et al., 2018)	SOP	Work procedures, authority limitations
5	(Wasiuzzaman & Edalat, 2016)	Gender	Dummy (1 for female and 2 for male)
6	(Bao et al., 2019), (Rangone, 2018)	Regulation	Formal effectiveness, substantive effectiveness
7	(Hofstede & Minkov, 2010)	Organizational Culture	Pragmatic, normative
8	POJKs on risk management and consumer protection	CRTB	Empathy, respect, courage to take the maximum risk that can be absorbed by bank capital

Instrument validation involved focus group discussions, pilot testing, and non-response bias testing. Structural equation modeling (SEM) based on partial least squares (PLS) analytical methods, alongside t-tests (SPSS software) for group comparisons, were used to test the research hypotheses.

4. Result

Respondents who agreed to complete the research questionnaire were analyzed demographically based on gender, age, education level, and length of service. Gender data were necessary for comparative testing to evaluate differences in CRTB between male and female respondents. Information on age, education level, and length of service was used to identify CRTB tendencies across these demographic categories and to construct a demographic profile of AOs in the Indonesian banking sector. Instrument testing was conducted using non-response bias analysis. The results of the Mann–Whitney test showed that all statements and question items had a symptotic significance (two-tailed) value greater than 0.05, indicating no significant difference in perception between early and late respondents. These findings also suggest that there was no difference in perception between those who participated (290 respondents) and those who did not (46 individuals). Respondent characteristics are presented in Table 3.

Table 3: Respondent Characteristics

Characteristic		Number	Percentage (%)
Gender	Male	161	55.52%
	Female	129	44.48%
	Total	290	100%
Age	22–31 years	101	34.83%
	32–41 years	105	36.21%
	42–51 years	84	28.96%
	Total	290	100%
Education	Diploma	88	30.34%
	Bachelor's degree	130	44.83%
	Master's degree	72	24.83%
	Total	290	100%
Work experience	< 3 years	65	22.41%
	3–6 years	68	23.45%
	6–10 years	75	25.86%
	> 10 years	82	28.28%
	Total	290	100%

Descriptive analysis of each research variable was performed using index scores to assess respondents' perceptions. The three-box method was applied, dividing the index values into three ranges as a basis for interpreting the results (Ferdinand, 2019). Table 4 presents the three value ranges used in this interpretation.

Table 4: Three-Box Method Index Scores

Calculation	Range	Category
Lower limit of index value = (Number of respondents × Lowest score range) ÷ Total score range Lower limit = $(290 \times 1) \div 5 = 58$	58–135.33	Low
Upper limit of index value = (Number of respondents × Highest score range) ÷ Total score range Upper limit = $(290 \times 5) \div 5 = 290$	135.34–212.67	Middle
Range value = (Upper limit of index value – Lower limit of index value) ÷ 3 Range value = $(290 - 58) \div 3 = 77.33$	212.68–290	High

Source: Ferdinand (2019).

4.1. Outer model testing of reflective measurement stage 1 (dimension level evaluation)

Outer model testing was performed to evaluate the reflective measurement model, focusing on convergent validity, discriminant validity, and construct reliability. Convergent validity was assessed by examining the outer loadings of indicators and the average variance extracted (AVE) values. Discriminant validity was evaluated using three primary criteria: cross-loadings, the Heterotrait–Monotrait (HTMT) ratio, and the Fornell–Larcker criterion. Reliability was tested through Cronbach's alpha and composite reliability to assess the internal consistency of each construct.

Table 5: Validity And Reliability of Outer Model Reflective Measurement Stage 1

Construct	AVE	Outer loading > 0.70	HTMT < 0.90	Fornell–Larcker met	Cronbach's alpha	Composite reliability	Conclusion
RMK	0.574	Yes	Yes	Yes	0.851	0.890	Valid & Reliable
SE	0.555	Yes	Yes	Yes	0.885	0.909	Valid & Reliable
HD	0.677	Yes	Yes	Yes	0.881	0.913	Valid & Reliable
SOP	0.720	Yes	Yes	Yes	0.870	0.911	Valid & Reliable
RGL	0.769	Yes	Yes	Yes	0.900	0.930	Valid & Reliable
CRTB	0.616	Yes	Yes	Yes	0.943	0.951	Valid & Reliable

The results of the Stage 1 convergent validity test, using the embedded two-stage approach (see Table 5), indicated that all indicators under the six constructs (i.e., risk management knowledge (RMK), self-efficacy (SEherding (HD), SOP, regulation (RGL), and CRTB), exhibiting outer loading values above 0.70.

The results of testing for discriminant validity were also strong. Cross-loading analysis showed that each indicator had the highest loading on its intended construct rather than on others, supporting the distinctiveness of each construct. Additionally, all HTMT values for construct pairs were below 0.90, further confirming discriminant validity.

4.2. Outer model test for reflective measurement stage 2 (variable level evaluation)

At Stage 2, the evaluation of convergent validity, discriminant validity, and reliability was conducted at the variable level using the embedded two-stage approach. The results showed that all indicators had outer loading values above 0.70, confirming that each observed item had a strong and statistically significant relationship with its respective latent construct. This finding supports the measurement accuracy of each indicator.

Additionally, the AVE values for all variables exceeded the minimum threshold of 0.50. This indicates that more than 50% of the variance in the observed indicators was explained by their corresponding latent constructs, thereby fulfilling the criteria for convergent validity. Thus, each construct in the model effectively captures the meaning intended by its indicators.

Discriminant validity was assessed using two methods: the HTMT criterion and the Fornell–Larcker criterion. The HTMT values for all variable pairs were below the conservative threshold of 0.90, confirming that each construct is empirically distinct from the others. The Fornell–Larcker criterion was also satisfied.

4.3. Outer model test for formative measurement stage 2

At Stage 2, the outer model evaluation of the formative measurement model focused on the construct of CRTB. As formative indicators contribute to forming a latent construct rather than reflecting it, the analysis emphasized the significance of outer weights and, when necessary, outer loadings.

The results indicate that the outer weights for all three CRTB dimensions (Y1, Y2, and Y3) were statistically significant, with p-values of 0.000. These values fall well below the 0.05 threshold, indicating that each dimension significantly contributes to the CRTB construct. This provides strong evidence that all three dimensions are valid formative indicators.

Even in cases where outer weights are not significant, outer loadings can serve as supplementary evidence. In this instance, all outer loading values—Y1 (0.941), Y2 (0.971), and Y3 (0.906)—exceeded the 0.50 benchmark, confirming that each dimension substantially contributes to the overall construct. Therefore, all indicators were retained in the model.

Variance inflation factor (VIF) values were examined to assess multicollinearity among the formative indicators. All CRTB items had VIF scores below 5, ranging from 1.544 to 2.401. These values fall well within acceptable thresholds, indicating that multicollinearity is not a concern and that the indicators contribute uniquely and independently to the CRTB construct.

4.4. Inner model

The inner model evaluation was conducted during Stage 2 to assess the quality of the structural relationships among latent constructs, determine overall model fit, and test the research hypotheses. This evaluation was based on R^2 , Q^2 , standardized root mean square residual (SRMR), goodness-of-fit (GoF), and PLS Predict. First, the adjusted R^2 value for the dependent variable CRTB was 0.843, meaning that the independent variables explain 84.3% of the variance in CRTB. This high R^2 value indicates strong explanatory power, with the model accounting for a substantial portion of CRTB variance.

Second, the Q^2 value was 0.711. A Q^2 value greater than 0 indicates that the model has predictive relevance. In this case, 71.1% of the variation in CRTB can be predicted by the model, whereas the remaining 28.9% may be attributable to external factors or random error. This result confirms the model's substantial predictive capability. Next, the SRMR was 0.051, which is below the commonly accepted cutoff of 0.08, indicating a good fit between the observed and predicted correlations. SRMR measures the average discrepancy between observed and predicted relationships, with lower values reflecting a better fit.

The GoF index yielded a value of 0.840, which falls into the “high” category. This result suggests that the model performs well in capturing measurement and structural dimensions. It reflects the model's overall ability to explain the variance within the dataset.

Finally, PLS Predict was used to compare the predictive performance of the PLS-SEM model against a linear regression benchmark. A comparison of results from both models is provided in Table 6.

Table 6: Partial Least Squares (PLS) Prediction Results

Indicator	Q^2 Predict	PLS-SEM RMSE	PLS-SEM MAE	LM RMSE	LM MAE
Y1	0.733	0.564	0.443	0.555	0.438
Y2	0.782	0.519	0.396	0.519	0.398
Y3	0.684	0.469	0.360	0.475	0.364

4.5. Robustness test

To ensure the stability and reliability of the structural model, robustness checks were conducted using an assessment of linearity and heterogeneity and a comparison using control variables. These checks were intended to determine whether the model's results remain consistent under alternative specifications, as recommended by best SEM practices (Ratnadi et al., 2013).

4.5.1. Linearity and heterogeneity testing

Linearity was tested using the quadratic effect method to assess whether a linear model appropriately captures the relationships between the independent and dependent variables. The p-values for the quadratic effects were as follows: risk management knowledge (X1) = 0.860; self-efficacy (X2) = 0.376; herding (X3) = 0.065; SOP (X4) = 0.202; and regulation (X5) = 0.582. All values were greater than 0.05, indicating no statistically significant curvilinear relationships. These results support the assumption of linearity and validate the robustness of the structural paths in the model.

Heterogeneity was evaluated using the finite-mixture PLS segmentation technique. The key indicator for assessing model heterogeneity was the normed entropy statistic (EN), which is considered more critical than other criteria (Ghozali & Latan, 2014). The ENThe value obtained was 0.281, which falls below the recommended threshold of 0.50 (Hahn et al., 2002). This result suggests that the model contains no significant unobserved heterogeneity, indicating that it can be considered homogeneous across the sample. Therefore, subgroup-specific modeling or segmentation is not required.

4.5.2. Robustness through comparison with control variables

A second robustness test was conducted by comparing the structural model estimates with and without the inclusion of control variables. The purpose of this test was to determine whether adding potential confounding variables significantly altered the strength or direction of the primary hypothesized relationships (Ratnadi et al., 2013). Table 7 presents the comparison results. The path coefficients and their significance levels remained consistent across both model specifications. Specifically, the direction of influence for each main independent variable was unchanged:

- Risk management knowledge and self-efficacy continued to exhibit a positive and significant effect on CRTB in both models.
- Herding and SOP maintained a negative and significant effect on CRTB.
- Regulation, included only in the model with control variables, showed a positive and significant effect (path coefficient = 0.204; p = 0.000).

Table 7: Robustness Test Through the Use of Control Variables

Path	No Control Variable Original Sample	p-value	With Control Variable Original Sample	p-value
RMK → CRTB	0,283	0,000	0,221	0,000
SE → CRTB	0,227	0,000	0,196	0,001
HD → CRTB	-0,259	0,000	-0,197	0,001
SOP → CRTB	-0,327	0,000	-0,297	0,000
RGL → CRTB			0,204	0,000

Although the inclusion of control variables led to slight reductions in the magnitude of the path coefficients, the statistical significance and directional consistency of each predictor remained stable. These results demonstrate that the model's explanatory power and structural integrity are robust to the inclusion of control variables.

4.6. Hypothesis testing

The structural model was tested to evaluate the relationships between four exogenous variables (i.e., X1–X4) and CRTB. Regulations (X5) was included as a control variable. This analysis employed the embedded two-stage approach within the SEM-PLS framework. The development of the second-order model using this approach is illustrated in Figures 3 and 4.

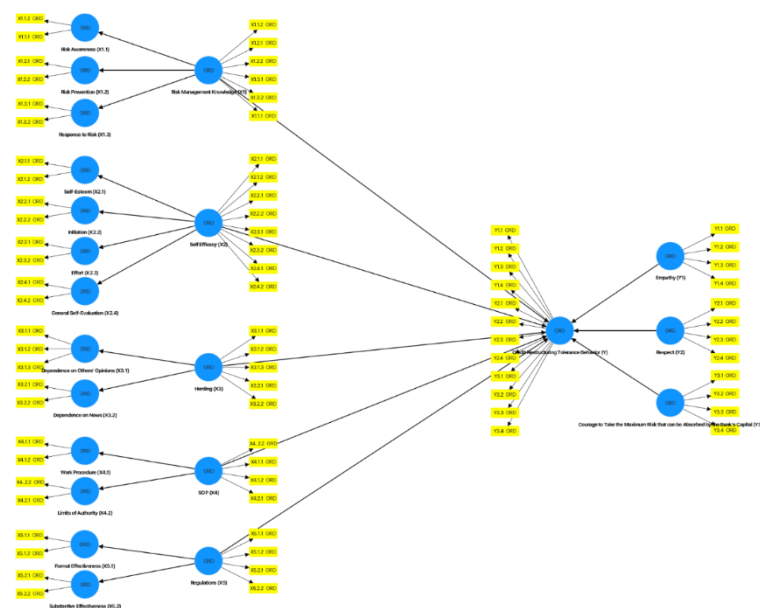


Fig. 3: Research Model Development Stage 1.

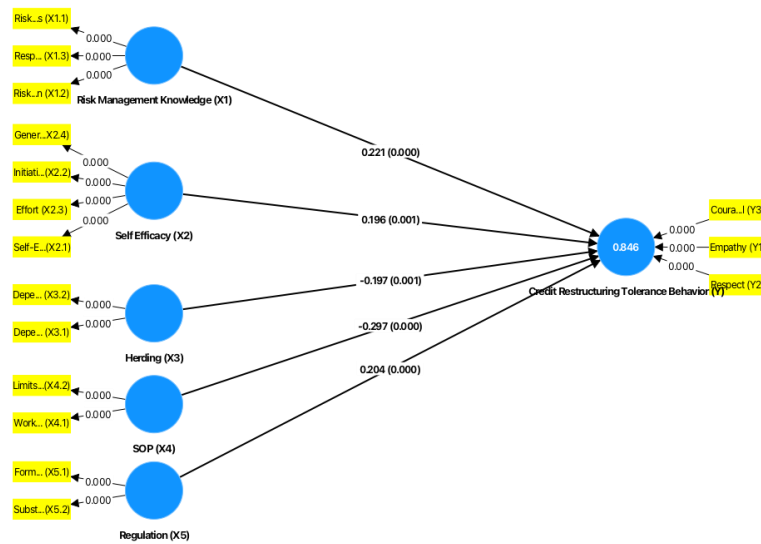


Fig. 4: Research Model Development Stage 2.

The results in Table 8 show that all proposed hypotheses were supported, with statistically significant path coefficients and p-values below the 0.05 threshold. These findings confirm the directional relationships proposed in the model, affirming both theoretical expectations and empirical strength.

Table 8: Inner Model Hypothesis Testing Results.

Hypothesis	Path	Original sample (O)	t-statistic (O/STDEV)	p-value	Hypothesis decision
H ₁	RMK → CRTB	0,221	3,792	0,000	Accepted
H ₂	SE → CRTB	0,196	3,469	0,001	Accepted
H ₃	HD → CRTB	-0,197	3,196	0,001	Accepted
H ₄	SOP → CRTB	-0,297	6,302	0,000	Accepted
	RGL → CRTB	0,204	4,277	0,000	Accepted

H1 was supported, with a path coefficient of 0.221 ($p = 0.000$), indicating that risk management knowledge significantly enhances CRTB. H2 was validated with a coefficient of 0.196 ($p = 0.001$), suggesting that self-efficacy positively influences CRTB. To support H3, a negative relationship was observed between herding behavior and CRTB ($\beta = -0.197$, $p = 0.001$), implying that reliance on peer decisions reduces tolerance for restructuring. Meanwhile, H4 was supported, with SOP having a significant negative effect on CRTB ($\beta = -0.297$, $p = 0.000$), emphasizing the restrictive impact of rigid procedures. Finally, regulation (X5) had a significant positive effect on CRTB ($\beta = 0.204$, $p = 0.000$), highlighting the role of regulatory support in enhancing restructuring tolerance.

4.7. T-test

A normality test was conducted to determine the appropriate type of t-test. The results showed Shapiro–Wilk significance values below 0.05, indicating that the data were not normally distributed. As a result, the dataset could not be analyzed using parametric statistical tests. Instead, non-parametric analysis was carried out using the Mann–Whitney U test.

Table 9: CRTB T-Test Results

Metric	Organizational Culture		Gender	
	Pragmatic	Normative	Female	Male
N	138	152	129	161
Mean Rank	181.70	112.63	195.11	105.75
Sum of Ranks	25,074.50	17,120.50	25,169	17,026
Mann–Whitney U	5,492.50		3,985	
Wilcoxon W	17,120.50		17,026	
Z	-7,010		-9,025	
Asymp. Sig. (2-tailed)	< 0.001		< 0.001	

As shown in Table 9, there are statistically significant differences in credit restructuring tolerance behavior (CRTB) by both organizational culture and gender. The asymptotic significance value (2-tailed) for both variables is <0.001 , which is less than the 0.05 significance threshold. This supports hypotheses H5 and H6.

In terms of organizational culture, employees working in a pragmatic culture have a mean rank value of CRTB of 181.70, while those in a normative culture have a mean rank of 112.63. This finding suggests that pragmatic organizational cultures tend to encourage higher CRTB behavior, indicating greater flexibility and tolerance in responding to crises. In terms of gender, female employees showed a mean CRTB rank of 195.11, which is significantly higher than that of males (105.75). This suggests that females have a greater tendency to exhibit tolerant behavior in the loan restructuring process. To clarify this difference, Table 10 is presented as a visual summary that reinforces the main findings:

Table 10: Summary of CRTB Differences by Organizational Culture and Gender

Variable	Category	N	Mean Rank CRTB	Interpretation
Organizational Culture	Pragmatic	138	181,70	CRTB is higher (more tolerant)
	Normative	152	112,63	CRTB lower (less tolerant)
Gender	Female	129	195,11	CRTB is higher (more tolerant)
	Male	161	105,75	CRTB lower (less tolerant)

5. Discussion

5.1. Effect of risk management knowledge on CRTB

The results support H1, indicating that risk management knowledge positively influences CRTB. The greater the knowledge, the higher the level of tolerance exhibited in credit restructuring decisions. These findings align with previous studies by Chen and Volpe (1998), Lusardi and Mitchell (2007), Tokar (2015), and Bapat (2020), which showed that financial literacy and understanding positively influence behavior; however, their research focused primarily on financial behavior.

AOs with risk management knowledge are equipped to prevent, assess, control, and handle risks effectively, enabling them to select optimal solutions even under uncertain conditions. Credit restructuring inherently involves risk, requiring AOs to apply their knowledge in evaluating and processing debtor applications. Failure to process restructuring requests increases the likelihood of default, contributing to increased NPLs. Conversely, AOs with strong risk knowledge are more inclined to approve restructuring applications, accompanied by proper evaluation and control procedures that benefit both parties (bank and debtor).

SCT highlights the role of cognitive factors (e.g., knowledge and intellectual ability) in shaping behavior. These factors foster optimism, proactivity, and competent decision-making. AOs who are cognitively adept in risk management are more likely to display tolerant behavior during credit restructuring processes, aiming for mutually beneficial outcomes. Likewise, Kim (2019) found that risk management knowledge enhances the intention to engage in risk control activities. The findings are consistent with those of Lusardi and Mitchell (2007), who showed that higher levels of education and experience contribute to improved financial knowledge and risk understanding. Similarly, studies by Ghosh (2018), Bapat (2020), and Xin et al. (2023) observed that employees with over six years of work experience tend to demonstrate stronger cognitive maturity and professionalism in risk comprehension.

5.2. Effect of self-efficacy on CRTB

The results indicate that H2 is supported, meaning that self-efficacy positively influences CRTB. The greater the self-efficacy, the higher the level of tolerance in credit restructuring behavior. These findings align with previous studies by Vrugt and Koenis (2002), Miraglia et al. (2017), Clercq et al. (2018), and Çetin and Aşkun (2018), who identified self-efficacy as a core component of workplace behavior due to its role in stimulating individual and collective engagement. Meanwhile, Rodríguez et al. (2020) and Pradhan et al. (2020) demonstrated that self-efficacy positively influences behavior.

AOs with high self-efficacy believe in their ability to organize and execute necessary actions to meet situational demands (Bellibas & Liu, 2017). During the COVID-19 pandemic, such demands include contributing to strengthening the economy. One method is the provision of credit restructuring tolerance, as noted by Tedeschi et al. (2021). AOs with high self-efficacy are more likely to act in ways that benefit both parties (banks and debtors), especially during times of economic hardship.

AOs with high self-efficacy are more likely to tolerate and negotiate debtor restructuring requests because they are confident in their ability to achieve optimal outcomes. In contrast, rejecting such applications would likely contribute to rising NPLs. High self-efficacy fosters belief in favorable outcomes and confidence in managing uncertainty. The ability to mobilize internal resources creatively, innovatively, and decisively reflects an affective trait indicating readiness to face risk. Individuals with strong academic grounding tend to approach risk strategically, which aligns with the findings of Pradhan et al. (2020). Similarly, employees with more than six years of work experience often demonstrate higher self-efficacy, having confronted and successfully navigated workplace challenges (Miraglia et al., 2017).

5.3. Effect of herding on CRTB

The findings support H3, indicating that herding behavior negatively affects CRTB. As herding increases, tolerance for credit restructuring decreases. These results are consistent with studies by Messis and Zapanis (2014), Danrimi et al. (2018), Jain et al. (2020), Vitmiasih et al. (2021), and Dambanemuya et al. (2023), all of whom concluded that herding significantly influences individual decision-making. According to the triadic model in SCT, individual behavior is influenced not only by cognition and environment but also by emotional (affective) factors. Therefore, the emotional drivers of the herding attitude can also affect behavior.

Herding behavior typically stems from internal anxiety about making independent decisions might lead to loss. AOs experiencing such anxiety may choose to imitate the decisions of others, perceiving those choices as being risk-free. These intolerant behaviors may include proposing restructuring schemes that solely favor the bank or, in more extreme cases, refusing to process credit restructuring applications outright. Such actions are seen as safe from institutional or personal consequences.

Most respondents fell within the 32–41 age group (36.21%). This demographic insight, combined with sub-index scores for the herding variable, indicates that higher herding tendencies were most common among millennial respondents. This generation is closely associated with the fear of missing out, characterized by anxiety and indecision. Jain et al. (2020) noted that millennials tend to exhibit higher levels of herding behavior due to increased uncertainty in judgment and decision-making.

5.4. Effect of SOP on CRTB

The results show that H4 is accepted, indicating that SOPs negatively affect CRTB. The more rigid the SOP, the lower the CRTB. These findings are consistent with those of Nawawi and Salin (2018), who demonstrated that SOPs play a key role in preventing fraudulent conduct and unethical practices. Similarly, Chiu and Donovan (2017) found that institutional regulations can help employees avoid engaging in bribery.

In this context, AOs are required to follow the SOPs strictly, often without the opportunity to make case-specific decisions. Although SOPs designed by banks are generally well-suited to stable or ideal conditions, they can be counterproductive in uncertain or crisis contexts. In such situations, rigid SOPs hinder the flexibility and adaptability needed to develop mutually beneficial solutions. Therefore, SOPs that are overly procedural and restrictive—without allowing AOs controlled discretion—can lead to intolerant behavior regarding credit restructuring.

Most participants held a bachelor's degree (44.83%) and had more than six years of work experience (25.86% + 28.28% = 54.14%). These characteristics, when related to SOP index scores, suggest that employees with higher education better understand the role of SOPs in improving work efficiency and reducing risk (Nawawi & Salin, 2018). This understanding contributes to greater adherence to SOPs.

Additionally, employees with more than six years of experience tend to be more compliant with SOPs due to their familiarity with internal supervision systems (Chiu & Donovan, 2017).

5.5. Effect of regulation on CRTB

The test results show that regulations positively influence CRTB, meaning that the more flexible and well-controlled the regulatory provisions, the higher the restructuring tolerance. These findings are consistent with those of Bao et al. (2019), who showed that environmental regulations positively affect managerial openness and foster proactive behavior. In the context of credit restructuring, proactive behavior refers to AOs' initiative and motivation to process restructuring applications and find the optimal solution for both parties—key indicators of CRTB.

In behavioral science, regulations are not necessarily viewed as coercive; rather, they function as a system, mechanism, or guideline that encourages voluntary compliance (Fahrurrozi, 2021). POJK Number 11/POJK.03/2020, which governed Bali's credit restructuring program during the COVID-19 pandemic, is an example of such non-coercive regulation. Under this regulation, banks were not compelled to offer restructuring to all debtors, nor were they required to apply a specific restructuring model. Instead, banks were granted the discretion to tailor restructuring schemes to individual debtor needs, provided that they complied with the broader risk management framework outlined in POJK No. 18/POJK.03/2016 on risk management implementation for commercial banks.

The flexibility built into POJK No. 11/POJK.03/2020 allowed bank employees to adhere to regulatory principles based on informed choices rather than obligation. As a result, regulations functioned as a strategic tool supporting proactive behavior among AOs in seeking optimal solutions for both parties.

5.6. Difference in CRTB between bank employees in pragmatic and normative cultures

The results support H5, indicating that CRTB differs between bank employees in pragmatic and normative organizational cultures. Specifically, employees in pragmatic organizational cultures exhibit higher CRTB than those in normative cultures. These findings are consistent with those of Bathaee (2011) and Cronk (2017), who emphasized the role of cultural context in shaping behavior. Other studies by Lei et al. (2019), Pallathadka (2020), and Hemanalini et al. (2016) also confirmed that organizational culture significantly influences behavior. SCT supports this view, stating that behavior is shaped by environmental and contextual factors such as culture (Bandura, 2002). Culture refers to a system of shared values that distinguishes one group from another.

Pragmatic organizational culture is characterized by flexibility in applying rules and a primary focus on fulfilling customer needs. This study finds that pragmatic cultures demonstrate greater tolerance for debtor-specific situations, even within regulatory boundaries. In contrast, normative organizational culture emphasizes adherence to non-negotiable rules, limiting the flexibility and responsiveness needed to find mutually beneficial solutions in complex credit restructuring scenarios. AOs in normative cultures, facing high pressure to comply with regulations, tend to be less tolerant of debtor conditions compared to their counterparts in pragmatic cultures.

The analysis shows that more respondents worked in normative organizations (152) than in pragmatic ones (138), suggesting that most respondents are embedded in normative work environments. When compared with the overall CRTB index score—categorized as moderate—this result suggests that the prevalence of normative cultural environments, which prioritize regulatory compliance over flexibility, contributes to suboptimal levels of CRTB. Rigid compliance with inflexible procedures is inherently at odds with tolerant, situationally responsive behavior.

5.7. Difference in CRTB between men and women

The results support H6, confirming that CRTB differs by gender, with women exhibiting higher CRTB than men. These results demonstrate the reliability of the TPB in understanding individual behavior and are supported by the findings of previous studies (Wasiuzzaman & Edalat, 2016; Nahar, 2017; Fisher & Yao, 2017) showing that gender, as part of an individual's social background, significantly influences individual behavior.

Psychologically, women are perceived as more agreeable, adaptive, and inclined to accommodate others, whereas men are typically associated with assertiveness, dominance, and behaviors such as interrupting, instructing, or rejecting others (Eagly & Revelle, 2022; Nurhayati, 2014). These gendered traits influence behavior: women are more open to persuasion and situational conditions (Davies, Mangan and Telhaj, 2005; Heyman et al., 2009; Gino, Wilmoth and Brooks, 2015), making them more likely to exhibit CRTB. This aligns with a previous study showing that women tend to be more tolerant of risk, including Nahar's (2017) study on retirement planning and Wasiuzzaman and Edalat's (2016) study on financial risk tolerance.

The analysis shows that male respondents comprised most of the sample (55.52%), whereas female respondents comprised 44.48%. When linked with the overall CRTB index—also rated as moderate—the male dominance in the sample may have influenced the overall level of CRTB. As males tend to exhibit traits that are less aligned with tolerant behavior, such as being direct, rejecting, or interrupting (Eagly & Revelle, 2022; Nurhayati, 2014), their prevalence in the sample may have contributed to the suboptimal CRTB.

5.8. Study implications

The findings of this study have theoretical and practical implications. Theoretically, this study contributes to the development of behavioral accounting by addressing key limitations in the TPB and SCT. Although it emphasizes the role of intention and social background, TPB gives limited attention to cognitive and environmental influences. Conversely, SCT focuses on personal and environmental factors but underrepresents the influence of social background variables. By integrating both theories—each rooted in the cognitivist paradigm—this study produces a predictive model capable of comprehensively explaining the behavioral factors involved in risk-based decisions.

Practically, the findings offer useful insights for banking management and regulators. Risk management knowledge, when paired with high self-efficacy and guided by non-coercive, choice-oriented regulations, can increase CRTB—a behavior believed to support economic recovery. The high prevalence of herding behavior in this study highlights the need for banks to develop mentoring programs to help AOs build confidence in making independent, rational, analytical decisions, rather than defaulting to peer influence or external pressures. Excessive anxiety over taking risks can impede problem-solving and prevent outcomes that serve the debtor and bank's interests. Structured mentoring and coaching are therefore essential for strengthening AOs' confidence and performance.

Furthermore, the CRTB model generated from this study has the potential for wide applicability in other regions and banking systems outside Indonesia, including in developing countries that face similar challenges in terms of loan restructuring, economic crisis, and

institutional pressures. Although this study focuses on conventional commercial banks and BPRs in Bali Province, the challenges faced by account officers (AOs) in making risk-based decisions are not unique to Indonesia. Many developing countries and emerging markets experience similar conditions, such as rigid regulations, normative organizational culture, limited discretion of field officers, and social pressure in the credit decision-making process. Therefore, the CRTB model not only enriches the understanding of risk-taking behavior in the banking sector but also offers an approach that can be adapted and applied cross-culturally and across banking systems. This approach can serve as a reference for global regulators, policymakers, and academics seeking to develop a more resilient, adaptive, and humane banking system amidst growing economic uncertainty.

6. Conclusion

This study finds that risk management knowledge and self-efficacy positively affect CRTB. AOs with strong risk management skills are well equipped to evaluate and mitigate potential defaults and are more open to processing restructuring applications. Likewise, AOs with high self-efficacy possess greater confidence in handling complex decisions and are more inclined to pursue restructuring options that deliver optimal outcomes.

In contrast, herding behavior and rigid SOPs negatively impact CRTB. AOs who lack confidence in making independent decisions often rely on group behavior to minimize personal risk, even if such decisions may not benefit the debtor. Meanwhile, strict SOPs that allow little flexibility constrain AOs' ability to tailor restructuring schemes to debtor-specific circumstances, especially in uncertain or crisis.

Organizational culture and gender differences also influence CRTB. AOs in normative cultures, which emphasize strict rule compliance, tend to be less tolerant than those in pragmatic cultures, which allow more discretion. Female AOs display greater tolerance, likely due to their adaptability and receptiveness to situational context. The findings reveal that rigid SOPs exert more influence over CRTB than formal regulations and that AOs often prioritize risk mitigation over strict compliance in restructuring decisions.

This study recommends that future research investigate CRTB in Islamic banks, given that adherence to Shariah principles may influence credit decision-making differently, as well as considering external pressures such as shareholder expectations and media influence. Incorporating debtors' perspectives through a qualitative approach may also enrich the understanding of interactions and perceptions in the loan restructuring process. In addition, the use of a mixed methods approach in future research is recommended to combine the advantages of quantitative, measurable data and contextualized qualitative analysis, resulting in a more comprehensive understanding. For practitioners, this study suggests the implementation of more flexible SOPs during a crisis, strengthening AO training in risk-based decision-making, improving communication strategies with debtors, and evaluating gender diversity to encourage tolerance and effectiveness of risk management in banking practices.

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Informed consent

The authors have obtained informed consent from all participants.

Conflict of interest

The authors declare that there is no conflict of interest.

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