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Operational Risk Management And Performance of Cooperative Microfinance In Thailand

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Abstract: The purpose of this study is to investigate the impact of operational risk management (ORM) on the performance of cooperative microfinance institutions, with a particular focus on the moderating role of specialization in this relationship. Using a quantitative research approach, survey questionnaires were distributed to 455 senior officers from savings and credit cooperative microfinance service providers (MSPs) in Thailand. Data analysis was conducted using Structural Equation Modeling (SEM) via SmartPLS software version 3.0. The findings reveal that ORM has a significant positive impact on the performance of cooperative microfinance institutions. Moreover, specialization was found to play a crucial moderating role, enhancing the positive relationship between ORM and performance. The study concludes that effective ORM, when combined with specialized knowledge and skills within cooperative microfinance institutions, leads to improved performance outcomes. These findings have important implications for policymakers, particularly the Bank of Thailand and the Ministry of Finance, as they work to develop and refine microfinance policies and programs that support sustainable growth and risk management in the sector.

Keywords: Operational Risk Management, Cooperative Microfinance, Specialization, Thailand

1. Introduction

Microfinance Microfinance loans serve as a crucial instrument for low-income individuals to either initiate a business or expand their working capital, thereby increasing their income potential. For instance, housewives skilled in weaving or making traditional desserts often lack the financial resources to purchase wood, tools, equipment, and raw materials, which limits their ability to earn. A microfinance loan provides the necessary funds to sustain and grow their operations. Moreover, microfinance offers a more accessible financing option for low-income groups aiming to fund their enterprises. An effective microfinance system can also help alleviate the burden of informal debt, which often traps individuals in a cycle of poverty.

Microfinance enables disadvantaged and low-income communities to access loans without relying on commercial banks, offering a powerful social impact (Ledgerwood, Earne, & Nelson, 2013). However, providing loans to poor and low-income groups can be costly for microfinance institutions (MFIs), potentially affecting their financial performance (Cull, Demirgüç-Kunt, & Morduch, 2007). Over the last decade, operational risk management (ORM) in microfinance has garnered increasing attention. Despite this focus, operational risk issues within microfinance remain relatively underexplored (Ebenezer, Islam, Yusoff, & Shamsuddin, 2018). Operational risk is one of the most significant risk categories for banks and financial institutions due to its impact on both the financial sector and the broader economy, making it a critical topic for regulation and research (Bodur, 2012).

Weak operational risk management is particularly problematic for MFIs because of the potential economic and social consequences of failure. MFIs often operate as the sole providers of banking services and credit to disadvantaged or marginalized communities (Armendariz & Labie, 2011). These institutions are instrumental in creating positive social and economic impacts, such as improving access to capital, enhancing the economic well-being of women, and reducing poverty (Amersdorffer, Buchenrieder, Bokusheva, & Wolz, 2015). Conversely, the failure of MFIs, often due to operational risk deficiencies such as poor lending practices, can have severe negative repercussions on their communities by withdrawing essential financial support (Zuru, Hashim, & Arshad, 2017). Thus, the effectiveness of MFIs' ORM is directly linked to the economic and social well-being of the populations they serve.

While several studies have examined ORM in the banking sectors of various countries such as Malaysia, Taiwan, and Spain (Jaafar, Syamsuddin, & Sarkawi, 2017; Yang, Hsu, Sarker, & Lee, 2017), and in microfinance institutions in countries like Zimbabwe, Tanzania, and Kenya (Njuguna, Gakure, Waititu, & Katuse, 2017; Siminyu, Clive, & Musiega, 2016), there remains a significant research gap concerning the impact of ORM on microfinance institutions, particularly in emerging

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economies where institutional and external factors (e.g., political, cultural, and economic environments) vary greatly. Therefore, this study seeks to examine the impact of ORM on the performance of cooperative microfinance institutions in Thailand, with a specific focus on the moderating role of specialization in this relationship.

2. Literature Review

2.1. Cooperative Microfinance In Thailand

In Thailand, operational risks have significantly impacted various organizations, businesses, individuals, and financial institutions, which in turn has adversely affected the country's economy. In 2017, the collapse of two microfinance service providers (MSPs) in Thailand caused widespread public concern, leading to a loss of confidence in the sector among clients. This decline in trust not only affects the success of these institutions but also has broader implications for Thailand's economic growth. Among the different types of microfinance providers, credit and savings cooperative MSPs hold the most significant financial resources in Thailand. Therefore, their collapse or poor performance would have severe negative consequences on the sector as a whole.

In 2017, Thailand had approximately 6,597 cooperative microfinance providers, a decrease from 6,741 in 2016. This decline was primarily due to the closures of 117 providers, which were largely attributed to weak risk management practices. Despite these challenges, cooperative MSPs in Thailand had a total cumulative revenue of approximately 1.7 trillion THB in 2017, which included revenues from investments and credits amounting to over 12 million THB. Their reported capital stood at 523 billion THB, and they recently recorded total benefits exceeding 30 billion THB. Moreover, cooperative MSPs provided financial services to at least 14% of rural households in 2007. By 2017, around 1,400 credit and savings cooperative MSPs were facilitating financial services for households, as well as small and micro-entrepreneurs (Financial Analysis Unit, Center of Information and Communication Technology, 2019).

2.2. Development of Hypotheses

2.2.1. Operational Risk Management (ORM) and Performance of Cooperative Microfinance

There is a documented link between operational risk management (ORM) and the performance of cooperative microfinance, as highlighted by several researchers. For instance, cooperative microfinance organizations in Kenya have been advised to adopt and implement robust ORM practices by addressing the lack of understanding among managers through training and advocacy (Siminyu et al., 2016). Njuguna et al. (2017) further revealed that effective ORM policies and procedures have positively influenced the progress of cooperative microfinance institutions. Moreover, adherence to operational procedures in financial operations has significantly impacted the growth of cooperative microfinance. The segregation of duties, assurance, approval, and authorization of internal audit and transaction functions have substantial effects on financial performance (Ngari, 2017). In evaluating the financial performance of cooperative microfinance, internal processes have been identified as critical factors (Ngari, 2017).

Harelimana (2017) also noted that the technological risks associated with IT have a bearing on the financial profitability, sustainability, productivity, and efficiency of cooperative microfinance institutions. However, Rozzani, Mohamed, and Syed Yusuf (2017) found that while customers are generally satisfied with loan disbursement through mobile solutions, issues with mobile banking pose significant challenges during the payment process.

In addition, Siminyu et al. (2016) examined the impact of operational risks on the financial performance of savings and credit unions (SACCOs) in Kakamega County, Kenya. Using a semi-structured questionnaire to collect data from 56 participants, the study found a significant positive linear relationship between the financial structures and results of SACCOs. Based on these findings, the authors concluded that SACCOs and other financial institutions should focus on mitigating operational risks within their financial systems. This leads to the first hypothesis of the study:

H1: *ORM has a significant impact on cooperative microfinance performance.*

2.2.2. Specialization as a Moderator

Specialization refers to the process by which individuals or groups focus on a limited range of activities, allowing them to develop specific skills and expertise (Adeyoyin, Agbeze-Unazi, Oyewunmi, Adegun, & Ayodele, 2015). This focus on specialization enables employees to delegate tasks they are less suited for, thereby improving overall efficiency. Specialization, or the division of labor, occurs when workers excel at specific tasks rather than spreading their efforts across multiple areas. It is a fundamental aspect of modern capitalist economies and offers various advantages to both workers and organizations (Hamel, 2008).

One of the primary benefits of specialization is its ability to enhance worker efficiency and productivity. While increased efficiency is advantageous to employers, it also benefits employees by improving their job prospects. Specialized workers are often more attractive to employers than those with only general skills. Many positions require specific expertise, and specialization helps individuals meet these demands.

However, Hamel (2008) also noted that while specialization can be beneficial, it is important for workers to maintain certain general skills. Inegbedion, Inegbedion, Peter, and Harry (2020) argued that anyone can become a

specialist in their field. Specialization involves assigning specific tasks to employees, reducing their responsibility for other duties and focusing their capacity on a single job. According to Inegbedion et al. (2020), specialization has also led to changes in social roles. Historically, individuals were involved in the entire process of production and derived satisfaction from being useful to others. With specialization, people rarely see the end consumers of their work and merely sell their labor as a commodity, leading to decreased job satisfaction and a decline in work quality. Based on this understanding, the following hypothesis is proposed:

H2: *Specialization moderates the relationship between ORM and cooperative microfinance performance.*

Building on the literature review concerning the impact of ORM on cooperative microfinance performance, it is hypothesized that specialization moderates the relationship between ORM and cooperative microfinance performance. The conceptual model illustrating these relationships is presented in Figure 1.

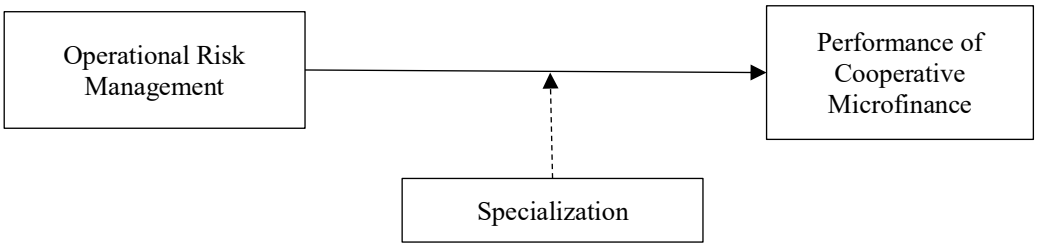

Figure 1: Conceptual Framework

3. Methodology

The population for this study consists of senior officers in credit and saving cooperative microfinance service providers (MSPs) in Thailand, totalling approximately 1,400 individuals. According to Davies and Haubenstock (2002), senior management's support and commitment to effective operational risk management (ORM) are crucial and well-deserved. This highlights the importance of allocating resources appropriately within organizations. The study surveyed 455 senior officers from these cooperative MSPs, distributed across seven categories: gender, education, specialization, position, experience, duration of employment, and ownership.

The survey results indicated that 62.6% of the respondents were female, and 37.4% were male. Additionally, 69.2% of respondents held a bachelor's degree. In terms of specialization, 53% were in business and administration, while 38.5% served on the board of directors. Regarding experience, 45.9% had more than ten years of experience, with 55.2% having worked in their roles for between 6 to 10 years.

Given the expertise and knowledge of the target group, a purposive sampling method was deemed the most appropriate, as senior officers provided insights into their perceptions or beliefs regarding microfinance performance in their respective MSPs. Therefore, the unit of analysis in this study is the individual senior officer.

This study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) as the analytical approach. Several factors influenced the decision to use PLS-SEM, including its ability to enhance the specified variance through endogenous latent constructs (dependent variables). PLS-SEM is recognized as a latent variable modeling technique that directly accounts for measurement errors by incorporating multiple dependent constructs (Hair, Hult, Ringle, & Sarstedt, 2017). The PLS-SEM algorithm allows each indicator to adjust its contribution to the composite score of the latent variable, assigning lower weightings to indicators with weaker correlations with related indicators and the latent construct (Chin, Marcolin, & Newsted, 2003). Additionally, PLS-SEM is particularly effective in modeling latent constructs in non-normal conditions, even with minimal requirements concerning residual distribution and sample size (Chin et al., 2003). Furthermore, Hair et al. (2017) suggested that PLS-SEM is well-suited for defining composite and dynamic correlations in a structural model.

The constructs for this study were derived from previously published research, as outlined in the literature review. The instrument consisted of 30 components (see Table 1). Responses were measured on a five-point Likert scale, where 1 indicated strong disagreement and 5 indicated strong agreement concerning ORM. For cooperative microfinance performance, a scale ranging from 1 = "Not at all" to 5 = "To a very considerable amount" was used.

Table 1: Items' Measures and Sources

Variables	Items	No. of Items	Sources
Operational Risk Management			
Internal Process Risk	1. My organization adopts a centralized management system 2. The staff in my organization is given tasks according to their post 3. There are corrective measures in the event of any unexpected management procedures and processes in my organization 4. The procedures and processes are reviewed regularly by external consultants in my organization 5. There are adequate procedures and policies for managing operational risks in my organization	7	Siminyu et al. (2016)

Variables	Items	No. of Items	Sources
	6. The financial department adheres to the written procedures and policies in managing the operational risks in my organization		
	7. The internal control systems in my organization are effective at detecting fraud or other significant operational risks		
People Risk	1. My staff is given appropriate training for their post in my organization	8	Alaoui and Tkiouat (2017)
	2. I employ staff with high competencies to work in my organization		
	3. There are sufficient number of staff in my organization		
	4. The compensation system in my organization is sufficient		
	5. There is effective communication among the staff in my organization		
	6. My staff is able to communicate effectively when engaging with a client		
	7. My organization provide continuous training on fraud prevention		
	8. There is a low staff turnover rate in my organization		
Technology Risk	1. The organization support training for IT adoption procedure to avoid errors in an internal system	7	Ibrahimovic and Franke (2017)
	2. My organization manage information technology, hardware, networks, software, efficiently		
	3. There is a sufficient backup system in my organization		
	4. There is a sufficient data storage facility in my organization		
	5. The technology and system in my organization operate with protection from the security threat		
	6. My organization has a backup plan if there is a deficiency in the internal communication system		
	7. My organization has control and examination of the security system		
Performance of Cooperative Microfinance			
Financial Performance	1. In my organization, the number of clients has increased	7	Mahazril 'Aini, Hafizah, and Zuraini (2012)
	2. There is an increase in the number of female clients in my organization		
	3. There is an increase in average savings deposits size in my organization		
	4. There is a decreasing trend in the value of clients' outstanding loans in my organization		
	5. There is an increment in the average loan size in my organization		
	6. There is an increment in the number of clients' retention rate in my organization		
	7. In my organization, the percentage of rural clients has increased		
Social Performance	1. There is an increase in profit in my organization.	7	Hashim, Adeyemi, and Alhabshi (2018)
	2. My organization's sales have increased.		
	3. My organization's return on assets (ROA) has increased		
	4. My organization's return on equity (ROE) has increased		
	5. My organization's return on sales (ROS) has improved		
	6. My organization capital has increased		
	7. My organization has increased the number of loan disbursements		

Source: Added by the author.

4. Results And Data Analysis

4.1. Assessment Of The Measurement Model

The researcher evaluated the measurement model in Figure 2 for convergent validity by employing the approach provided by Hair, Hult, Ringle, and Sarstedt (2014). Moreover, Hair et al. (2014) suggested factor loading analysis, average variance extracted (AVE) analysis, and composite reliability (CR) analysis in testing convergent validity, with suggested cut-off parameters of 0.5, 0.5 as well as 0.7, correspondingly. As per Hair et al. (2014), in exploratory research, the suggested cut-off threshold for factor loading analysis is 0.5. Here, Cronbach's alpha and outer loadings determine the internal accuracy.

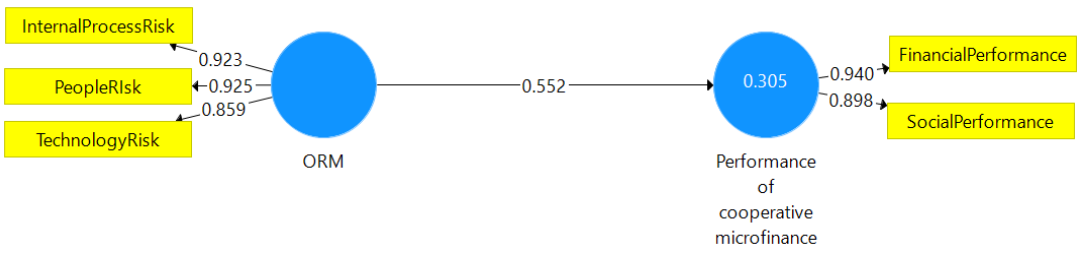

Figure 2: Measurement Model

In the construction phase, conventional threshold settings of the value 0.7 for each Cronbach's alpha and CR tested the reliability (Hair et al., 2014). Table 2 outlines the CR estimation, Cronbach's alpha, as well as the AVE measured. Here, Cronbach alpha and CR above 0.7 for both variables indicate high levels of reliability. Furthermore, the average extracted variance values tested were significantly above the 0.50 threshold. All of the trials show that the scales have convergent validity. According to this analysis, the outer loads for all indicators of the constructs exceed the recommended value of over 0.5.

Moreover, the researchers utilized the Fornell-Larcker criterion to measure discriminant validity (Hair et al., 2014). According to the statistics, all of the indicators' outer loadings on each connected variable were larger than their cross-loads (see Table 3). Therefore, the cross-loading criteria, AVE values, and construct correlations demonstrated that all variables have discriminant validity. Moreover, all AVEs were greater than the squared inter-construct correlations depending on the Fornell-Larcker criterion, indicating that all variables possess appropriate discriminant validity.

Table 2: Validity of the data

Variables	Code	Factors Loading	Cronbach's Alpha	Composite Reliability	AVE
Operational Risk Management	Internal Process Risk	0.923	0.888	0.930	0.815
	People Risk	0.925			
	Technology Risk	0.859			
Performance of Cooperative Microfinance	Financial Performance	0.940	0.820	0.916	0.845
	Social Performance	0.898			

Source: Added by the author.

Table 3: Discriminant Validity

	Operational Risk Management	Performance of Cooperative Microfinance
Operational Risk Management	**0.903**	
Performance of Cooperative Microfinance	0.552	**0.919**

Source: Added by the author.

4.2. Assessment Of The Structural Model

Five tests were employed to test the structural models of VIF, f2, R2, Q2, and relationship significance. Here, collinearity was a problem since the VIF values for all latent variables in each group were less than 5. As a consequence, no collinearity issues exist in this research.

We tested the structural model to determine the model's prediction capabilities and the correlations between the variables. Here, SmartPLS 3.0 software's bootstrap approach employing 455 examples and 5000 re-samples investigated the importance of the t-values corresponding with each direction. As per Hair et al. (2014), 1.65 (significant level= 10 %), 1.96 (significant level= 5 %), as well as 2.57 (significant level= 1 %) are the most commonly employed critical values for two-tailed studies. In this research, the hypotheses were approved by relying on a 5% significant level (1.96) (Hair et al., 2014). In addition, Table 4 outlines the statistical significance of the correlation between ORM and efficiency. Here, hypothesis testing and the significance of the path coefficients of hypothesis 1 (H1) reveal indicators $\beta = 0.522$, $t = 15.193$, and $p = 0.00$.

Table 4: Hypothesis Testing

	Beta	SD	T Value	f^2	R^2	Q^2	P Values	Result
ORM → Performance of Cooperative Microfinance	0.552	0.036	15.193	0.439	0.305	0.251	0.00	Supported

Source: Added by the author.

R2 values of the samples assessed the construct's predictive capability on cooperative microfinance performance. Here, the R2 coefficient was 0.305. It also used the blindfolding process to generate Q2 values for cooperative microfinance performance. Moreover, Q2 values greater than 0 were employed to examine the predictive significance of the samples' models (Hair et al., 2017). Finally, we also assessed the f2 impact sizes of one predictor variable to determine how they affected cooperative microfinance performance. Table 4 reveals that ORM (f2 = 0.439) significantly impacted cooperative microfinance performance. Individually, f2 values of 0.02, 0.15, and 0.35 resemble small, medium, and large effects, as supported by Hair et al. (2017).

4.3. Moderation Analysis

The primary goal of this section is to experimentally examine the H2 research hypothesis, which concerns the investigation of the moderating effect of specialization on ORM and cooperative microfinance performance (Figure 3). Here, a moderator in a sample can change the intensity and frequency of a correlation between two constructs (Hair et al., 2017).

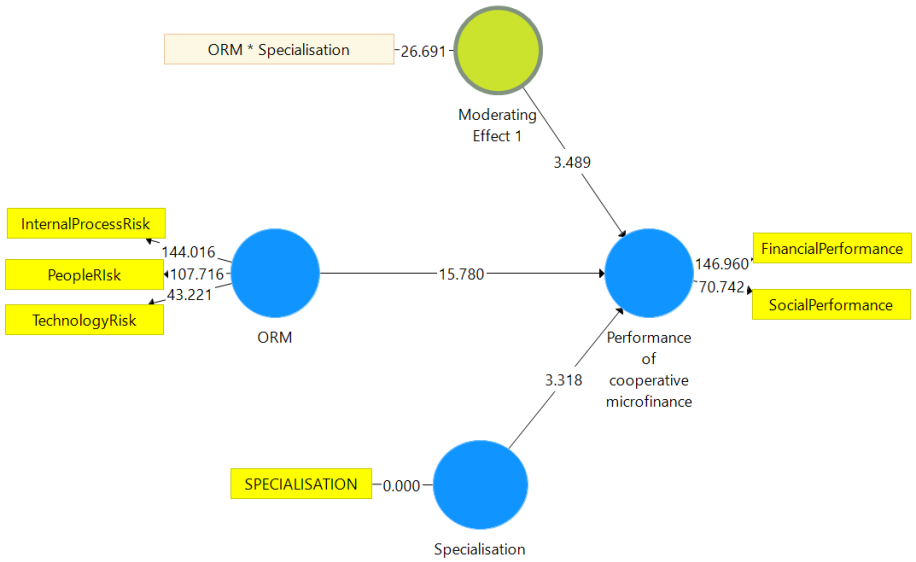

Figure 3: Moderation Analysis

A moderating effect of specialization was applied to the model as supported by Hayes, Montoya, and Rockwood (2017), Hair et al. (2017), and Preacher and Hayes (2008). Note that the bootstrapping method comprises 496 bootstrap cases, 5000 bootstrap samples employing the option of no sign adjustments, and the mean replacement for missing values to conduct the moderator's significance test. This results in a t-value of 3.400 (<1.96), having p = 0.001 (<0.05) for the direction connected to the moderator specialization. Thus, we can infer that the moderating effect is statistically important, suggesting that H2 was supported.

5. Discussion

The primary goal of this study was to assess the impact of Operational Risk Management (ORM) on the performance of Thailand's cooperative Microfinance Service Providers (MSPs). The findings confirm that ORM has a significant influence on the performance of cooperative microfinance in Thailand, as demonstrated by the indicators (β= 0.522, t = 15.193, p = 0.00). These results strongly support the hypothesis that there is a meaningful empirical relationship between ORM and performance.

These findings are consistent with previous studies, such as those by Siminyu et al. (2016) and Ngari (2017), which also found a relationship between ORM and performance. Additionally, research by Dinger and Hagen (2009) and Kauppi, Longoni, Caniato, and Kuula (2016) indicates a significant positive relationship between ORM and the performance of banks, suggesting that effective risk management can enhance operational performance. Furthermore, according to Siminyu et al. (2016), ORM practices among managers can increase awareness and help address challenges through education and the promotion of cooperative microfinance efficiency. Njuguna et al. (2017) also emphasized that ORM policies and procedures can significantly impact the growth of cooperative microfinance.

The second objective of this study was to assess the role of specialization as a moderator in the relationship between ORM and cooperative microfinance performance. The findings supported this hypothesis, demonstrating that specialization indeed moderates the correlation between ORM and cooperative microfinance performance, with indicators (β = 0.155, t = 3.400, p = 0.001). Specialization often leads employees to focus on specific tasks, which can enhance job performance but may also reduce job satisfaction and the overall quality of work if not managed properly. As Hamel (2008) noted, while specialization can be beneficial, employees must also maintain a balance of general skills. Inegbedion et al. (2020) emphasized that specialization involves assigning specific tasks to individuals, thereby reducing their responsibilities in other areas and potentially limiting their capacity to perform other roles effectively.

6. Conclusion

The study's findings reveal that ORM significantly influences the performance of cooperative microfinance, with specialization playing a moderating role in this relationship. The results suggest that a higher degree of specialization among workers leads to better performance within the organization. This study highlights the importance of effective ORM in driving the high performance of cooperative microfinance institutions. Additionally, worker specialization is identified as a crucial factor that can enhance organizational performance, serving as an asset that contributes to better management and operational outcomes. The implications of this study serve as a reminder for organizational management to commit to designing and implementing holistic ORM practices that can further enhance performance.

7. Limitations and Further Recommendations

This research has several limitations. Firstly, the study focused exclusively on credit and saving cooperative microfinance service providers, excluding other sectors such as insurance, small-scale enterprises, manufacturing industries, healthcare, Fintech, and education. Future studies should expand their scope to include a variety of industries to obtain more comprehensive and in-depth results. Secondly, the current study employed a quantitative method and relied on a single data collection technique, using only a questionnaire. This approach may have limitations, as respondents might not always provide complete or consistent answers. Future research could benefit from combining both qualitative and quantitative methods, allowing for a more in-depth exploration of the performance of credit and saving cooperative microfinance service providers (MSPs) in Thailand.

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References

Adeyoyin, S. O., Agbeze-Unazi, F., Oyewunmi, O. O., Adegun, A. I., & Ayodele, R. O. (2015). Effects of job specialization and departmentalization on job satisfaction among a Nigerian university library staff. *Library Philosophy & Practice.*

Alaoui, Y. L., & Tkiouat, M. (2017). Managing operational risk related to microfinance lending process using fuzzy inference system based on the FMEA method: Moroccan case study. *Scientific Annals of Economics and Business, 64*(4), 459-471. https://doi.org/10.1515/saeb-2017-0029

Amersdorffer, F., Buchenrieder, G., Bokusheva, R., & Wolz, A. (2015). Efficiency in microfinance: Financial and social performance of agricultural credit cooperatives in Bulgaria. *Journal of the Operational Research Society, 66*(1), 57-65. https://doi.org/10.1057/jors.2013.162

Armendariz, B., & Labie, M. (Eds.). (2011). *The handbook of microfinance*. Singapore: World Scientific Publishing. https://doi.org/10.1142/7645

Bodur, Z. (2012). Operational risk and operational risk-related banking scandals/large incidents. *Maliye ve Finans Yazıları, 1*(97), 64-86.

Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modelling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information Systems Research, 14*(2), 189-217. https://doi.org/10.1287/isre.14.2.189.16018

Cull, R., Demirgüç-Kunt, A., & Morduch, J. (2007). Financial performance and outreach: A global analysis of leading microbanks. *The Economic Journal, 117*(517), F107-F133. https://doi.org/10.1111/j.1468-0297.2007.02017.x

Davies, J., & Haubenstock, M. (2002). Building effective indicators to monitor operational risk. *The RMA Journal, 84*(8), 40-43.

Dinger, V., & Von Hagen, J. (2009). Does interbank borrowing reduce bank risk? *Journal of Money, Credit and Banking, 41*(2-3), 491-506. https://doi.org/10.1111/j.1538-4616.2009.00217.x

Ebenezer, O. O., Islam, A., Yusoff, W. S., & Shamsuddin, Z. (2018). An investigation into operational risk in commercial banks: Empirical evidence from Nigeria. *International Journal of Accounting, 3*(12), 49-62.

Financial Analysis Unit, Center of Information and Communication Technology. (2019). *Financial information of cooperatives 2018*. Bangkok: Cooperative Auditing Department, Ministry of Agricultural and Cooperatives. https://www.cad.go.th/ewtadmin/ewt/statistic/download/information61/cooperative.pdf

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modelling (PLS-SEM)*. Thousand Oaks, CA: SAGE Publications, Inc.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modelling (PLS-SEM) (2nd ed.)*. Thousand Oaks, CA: SAGE Publications, Inc.

Hamel, G. (2008). *The future of management*. Boston, MA: Harvard Business School Press.

Harelimana, J. B. (2017). The impact of information communication and technology utilization on the financial performance of microfinance institutions in Rwanda case study: Reseau Interdiocesain De Microfinance (RIM) Ltd, Rwanda (2011-2015). *Management and Organizational Studies, 4*(2), 13-28. https://doi.org/10.5430/mos.v4n2p13

Hashim, M. J., Adeyemi, A. A., & Alhabshi, S. M. (2018). Effects of intellectual capital on microfinance institutions' performance. In *Proceedings of the 2nd Advances in Business Research International Conference* (pp. 187-196). Singapore: Springer. https://doi.org/10.1007/978-981-10-6053-3_18

Hayes, A. F., Montoya, A. K., & Rockwood, N. J. (2017). The analysis of mechanisms and their contingencies: PROCESS versus structural equation modelling. *Australasian Marketing Journal (AMJ), 25*(1), 76-81. https://doi.org/10.1016/j.ausmj.2017.02.001

Ibrahimovic, S., & Franke, U. (2017). A probabilistic approach to IT risk management in the Basel regulatory framework: A case study. *Journal of Financial Regulation and Compliance, 25*(2), 176-195. https://doi.org/10.1108/JFRC-06-2016-0050

Inegbedion, H., Inegbedion, E., Peter, A., & Harry, L. (2020). Perception of workload balance and employee job satisfaction in work organizations. *Heliyon, 6*(1), e03160. https://doi.org/10.1016/j.heliyon.2020.e03160

Jaafar, A. R., Syamsuddin, J., & Sarkawi, M. N. (2017). Internal control system and hazard identification of operational risk in Malaysian conventional banking. *International Journal of Supply Chain Management, 6*(2), 215-228.

Kauppi, K., Longoni, A., Caniato, F., & Kuula, M. (2016). Managing country disruption risks and improving operational performance: Risk management along integrated supply chains. *International Journal of Production Economics, 182*, 484-495. https://doi.org/10.1016/j.ijpe.2016.10.006

Ledgerwood, J., Earne, J., & Nelson, C. (Eds.). (2013). *The new microfinance handbook: A financial market system perspective*. Washington, DC: World Bank Publications. https://doi.org/10.1596/978-0-8213-8927-0

Mahazril, A. Y., Hafizah, H. A. K., & Zuraini, Y. (2012). Factors affecting cooperatives' performance in relation to strategic planning and members' participation. *Procedia-Social and Behavioral Sciences, 65*, 100-105. https://doi.org/10.1016/j.sbspro.2012.11.098

Ngari, G. M. (2017). The effect of internal controls on financial performance of microfinance institutions in Kenya. *International Academic Journal of Economics and Finance, 2*(3), 112-140.

Njuguna, J. R., Gakure, R., Waititu, A. G., & Katuse, P. (2017). Financial risk management strategies and the growth of microfinance sector in Kenya. *Journal of Accounting, 2*(1), 23-53. https://doi.org/10.47941/jacc.118

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and re-sampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 879-891.* https://doi.org/10.3758/BRM.40.3.879

Rozzani, N., Mohamed, I. S., & Syed Yusuf, S. N. (2017). Risk management process: Profiling of Islamic microfinance providers. *Research in International Business and Finance, 41*, 20-27. https://doi.org/10.1016/j.ribaf.2017.04.009

Siminyu, M., Clive, M., & Musiega, M. (2016). Influence of operational risk on financial performance of deposit taking savings and credit co-operatives in Kakamega County. *International Journal of Management and Commerce Innovations, 4*(2), 509-551. https://doi.org/10.9790/487X-1904026369

Yang, S. O., Hsu, C., Sarker, S., & Lee, A. S. (2017). Enabling effective operational risk management in a financial institution: An action research study. *Journal of Management Information Systems, 34*(3), 727-753. https://doi.org/10.1080/07421222.2017.1373006

Zuru, N. L., Hashim, M. K., & Arshad, D. (2017). Problems faced by microfinance institutions in Nigeria: A recent survey. *International Journal of Information, Business and Management, 9*(4), 1-10.

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