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## The Risk of Fintech Implementation in Indonesian State-Owned Banks

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### ABSTRACT

Financial technology, commonly known as Fintech, represents the convergence of finance and technology. While Fintech offers numerous advantages and significant opportunities for implementation and growth, it also presents various risks that should not be overlooked. This research aims to investigate whether Fintech risks—specifically cyber, outsourcing, operational, and systemic risks—negatively impact the performance of state-owned banks in Indonesia. The performance is measured using the Balanced Scorecard approach. Employing quantitative methods, this study analyzes state-owned banks in Indonesia, with a sample selected through purposive sampling. Data were collected via questionnaires from 109 respondents and processed using SPSS 25 with multiple regression models. The findings reveal that cyber risk has a negative and significant impact on banking performance, while outsourcing risk has a positive and significant impact. In contrast, operational risk and systemic risk do not significantly affect banking performance. This research provides valuable insights for banking decision-makers to recognize the potential drawbacks of adopting Fintech.

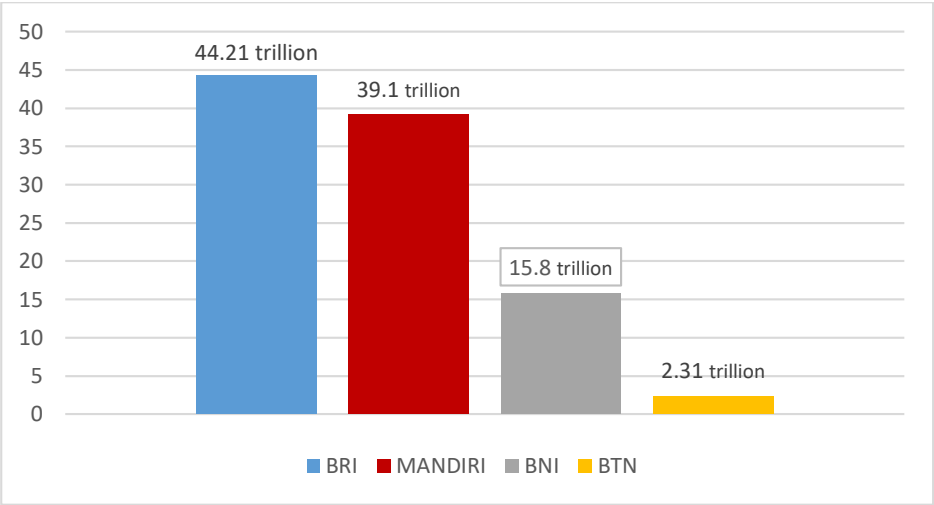
**Keywords:** Fintech, cyber risks, outsourcing risks, operational risks, systemic risks, bank performance

# 1. INTRODUCTION

Performance can be seen as either a process or the outcome of work. It involves undertaking tasks to achieve specific results, and these results themselves also reflect performance (Wibowo et al., 2017). Performance is crucial for companies because it not only measures success but also serves as a foundation for the company's reward system. Evaluation results can offer valuable feedback to management about the strategies employed. Typically, company performance assessments are derived from historical financial data (Wahyudin, 2020). The banking industry, in particular, is vital for economic and national development. Strong performance in this sector is essential for maintaining investor confidence and promoting overall economic growth.

Figure 1.

State-owned Bank net profit (Quarter III 2023)



In 2023, the performance of State-Owned Enterprises (BUMN) in Indonesia continued to improve. There are four state-owned banks: Bank Mandiri, Bank Rakyat Indonesia (BRI), Bank Negara Indonesia (BNI), and Bank Tabungan Negara (BTN). Among them, BRI achieved the highest net profit in the third quarter of 2023, amounting to IDR 44.21 trillion. During the same period, Bank Mandiri reported a net profit of IDR 39.1 trillion, BNI IDR 15.8 trillion, and BTN IDR 2.31 trillion. Despite BRI having the largest earnings, its profit growth rate was slower compared to Mandiri. In the third quarter of 2023, Bank Mandiri's net profit grew by 27.4% year-over-year (yoy), BNI by 15.1% (yoy), BRI by 12.47% (yoy), and BTN by 1.67% (yoy). This growth is closely linked to the banks' digital transformation strategies.

Technology is advancing rapidly, driving the development of various industries worldwide, including the banking sector. A significant aspect of this technological evolution in financial institutions is financial technology (Fintech). Fintech refers to the integration of finance and technology. Several researchers (Blakstad & Allen, 2018; Cortina & Schmukler, 2018; Gomber et al., 2018) describe it as a fintech revolution due to its association with modern digital technologies like cloud computing, big data, artificial intelligence (AI), the Internet of Things, and Blockchain. The integration of these technologies into financial businesses and the emergence of FinTech companies offering digital financial services are attracting numerous customers and prompting banks to adopt and utilize them. This trend is driven by the benefits banks gain from implementing FinTech solutions. The primary goal of Fintech is to support banking operations by merging financial programs within banking institutions with the latest technology. Fintech adoption enables banks to enhance the availability and affordability of their financial services (Anis et al., 2023).

According to data from Bank Indonesia (Jannah, 2023), the value of digital banking transactions in Indonesia reached IDR 4,264.8 trillion, or nearly IDR 4.3 quadrillion, in April 2023. This amount encompasses various types of digital banking transactions, including internet banking, SMS/mobile banking, and telephone banking, as classified by the Financial Services Authority (OJK). Over the past decade, the financial market has undergone significant changes, particularly with the rise of fintech as a key financial innovation in the digital era (Kristianti and Tulenan, 2021). Data from the Indonesian Fintech Association in 2023 shows that there are currently 352 fintech companies in Indonesia, including 11 financial institutions and 7 association partners. Fintech integrates financial programs with technology within financial institutions to support banking activities. State-owned conventional banks (BUMN) such as Bank Mandiri, Bank Negara Indonesia (BNI), Rakyat Indonesia (BRI), and Bank Tabungan Negara (BTN) are collaborating with fintech companies. According to Bisnis (2023), approximately 60.6 percent, or around 321.82 million, of public savings accounts are held in government-owned or state-owned banks.

While FinTech offers numerous positive aspects and significant opportunities for implementation and growth, it also presents risk factors that must not be overlooked (Rahmanto et al., 2019). The adoption of FinTech by banks introduces new risks (Saleem, 2021). Given the crucial role of banks in the financial system, it is vital to understand the risks and opportunities that FinTech creates for banks and their impact on the core functions of financial intermediaries within the modern financial services ecosystem (Murinde et al., 2022).

With the rapid advancement of technology, the threat of cyberattacks on the financial industry has become a serious concern. According to Krisnawati (2023), the National Cyber and Crypto Agency (BSSN) recorded over 204 million cyberattacks in Indonesia from January to June 2023. The financial sector ranked third in terms of the number of cyberattacks. In Indonesia, notable cyberattack incidents have occurred in the financial sector, affecting institutions such as BRI Life Insurance, PT BFI Finance Indonesia Tbk (BFIN), BPJS Health Indonesia, PT Bank BTPN Tbk (BTPN), and more recently, Bank BCA and BPD Bali, which resulted in substantial customer losses (CNBC Indonesia, 2023).

Information security risks including cyber risks are a major concern when banks engage with fintech. IT governance helps establish information security policies, identify cyber risks, and establish security controls to protect sensitive data and critical bank information. In research (Al-Shari and Lokhande 2023) the most important risks affecting FinTech in banks are cyber risk, outsourcing risk, operational risk and systemic risk.

This research is a replication of research by Al-Shari & Lokhande (2023) entitled "The relationship between the risks of adopting FinTech in banks and their impact on the performance". The difference between this research and previous research is the sample used. In previous research, the unit of analysis used was Bank Yemen, whereas in this research, Bank BUMN Indonesia was used.

Based on the background explained above, researchers are interested in re-examining and expanding upon similar research by investigating "The Influence of Risks of Implementing Fintech in Banking and Its Impact on the Performance of Indonesian State-Owned Banks." This study aims to determine whether fintech-related risks—including cyber, outsourcing, operational, and systemic risks—negatively affect the performance of state-owned banks. Through this research, it is hoped that banks will be better equipped to identify and understand the various types of risks that impact their performance, enabling them to take necessary preventive measures and be better prepared to manage these risks effectively.

## **2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

### **2.1 Disruption Theory**

The term "disruption" was first introduced by Clayton M. Christensen in his 1997 book, "The Innovator's Dilemma." Christensen views disruption as a form of innovation that brings significant benefits. For established companies with structured work systems capable of predicting profits, the impact of technological innovation cannot be ignored (Yurina, 2020). This technology offers enhanced performance or features at a lower price or is more accessible

compared to mainstream market products or services, attracting customers seeking convenience in their lifestyles.

In the Indonesian language, disruption is defined as something that is separated from its roots. In essence, disruption describes a situation where a breakthrough with a new system displaces an existing one. This balance-disrupting system and its changes are a form of innovation. According to Hadad (2017), disruptive innovation in the financial services industry has altered the industry's landscape globally, affecting the industrial structure, intermediation technology, and consumer marketing models. These changes have led to the emergence of a new phenomenon known as financial technology.

Disruptive theory suggests that new or innovative fintech companies can challenge and transform existing financial markets, disrupting the traditional business models of conventional financial institutions such as banks and other financial firms.

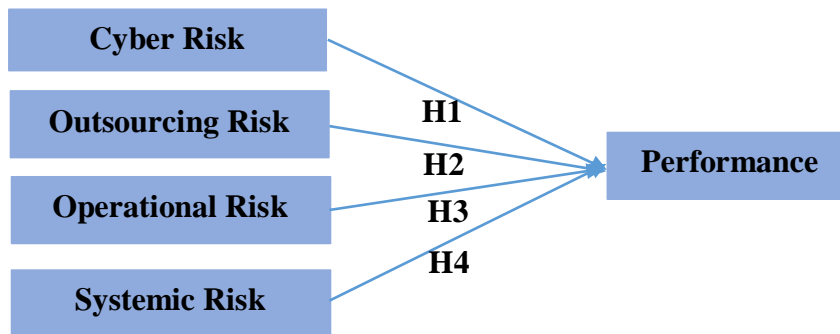
## **2.2 Financial technology**

Financial Technology (Fintech) is a general term for (IT) related to the financial industry (Kemp 2017). According to Kusuma & Asmoro (2021), financial is the use of technology in the financial system that creates new services, technology, products and business models so that it will affect financial system stability, monetary stability and security, smoothness, reliability and efficiency of the payment system. Meanwhile, according to Hiyanti et al., (2020) financial technology is a modification in the financial services sector where paper money is no longer needed, meaning that the presence of financial technology can change currency to digital to make transactions easier (Hiyanti et al., 2020).

Currently information systems and technological developments continue to produce various new innovations related to financial technology with the aim of meeting various community needs such as accessing financial services or transaction processes (Mar'atushsholihah and Tuti 2021). Fintech offers easier and more efficient payment methods. However, there are risks associated with digital economic innovation (Khiaonarong and Goh 2020). Undoubtedly, technological advances have benefited the financial industry globally (Bhatnagar et al. 2022). However, it also carries several dangers regarding competitiveness, privacy and financial stability (Hollanders, 2020; Mishchenko et al., 2021). As a result, many people are concerned about issues of privacy, system reliability, cybersecurity, and potential vulnerability to cyberattacks.

## 2.3 Conceptual framework

Figure 2.  
Conceptual Framework



## 2.4 Hypothesis Formulation

Cyber risks can significantly impact bank performance, both financially and reputationally. A successful cyberattack can lead to a data security breach, resulting in the theft of sensitive customer data such as identity information, bank accounts, or credit card data. This can cause financial losses and a loss of customer trust. Disruption theory highlights the importance of staying vigilant regarding new innovations. In the context of cybersecurity, this means companies must continually monitor technological developments and emerging attack tactics, adjusting their security strategies as needed. Saleem (2021) and Vuřiniř (2020) show that cyber risks pose a threat to financial institutions and fintech companies that use modern digital technologies in their operations and service delivery. This attracts many digital thieves and cybercriminals who attempt to breach and damage data. Research by Giudici (2018), Kaur et al. (2021), Panetta (2018), and the Basel Committee on Banking Supervision (2018) also indicates that cyber risks affect financial institutions and fintech companies.

From this explanation, the hypothesis that can be formulated is:

**H1: Cyber risks negatively impact the performance of banks that adopt FinTech.**

Banks that depend on third-party fintech service providers must ensure these providers meet the standards expected by banks and regulators. There are inherent risks if the quality of service from third parties falls short, potentially impacting customer experience and overall bank performance. Disruption theory underscores how traditional banks face threats from more agile and innovative fintech startups. To compete effectively, banks often opt to outsource certain services or collaborate with fintech providers. However, outsourcing introduces risks as

banks rely on third parties for critical technology and services; any issues or failures on the fintech provider's part can adversely affect the bank's performance.

In research by Al-Shari and Lokhande (2023), outsourcing risk is found to have a significantly positive impact on banking performance. These findings highlight that the risks associated with outsourcing prompt banks to maintain a state of readiness, caution, and heightened vigilance to mitigate potential threats when adopting fintech solutions.

From this discussion, the hypothesis that can be formulated is:

**H2: Outsourcing risk significantly influences the performance of banks that adopt FinTech.**

Operational risk pertains to disruptions or failures within internal processes, systems, or personnel that can impact bank operations. This type of risk significantly affects the performance of banks that integrate fintech. Disruption theory often illustrates how fintech, as a new innovation in finance, poses a threat to banks using these technologies. This threat is closely tied to operational risk because banks must swiftly adapt to technological advancements and changes in business practices. Adopting fintech exposes banks to operational risks and introduces operational challenges (Sapian et al., 2021). Al-Shari & Lokhande (2023) elaborate in their research that effectively managing and mitigating operational risks enhances bank performance. Errors in delivering fintech services, whether by customers or employees, negatively impact bank performance. Based on this discussion, the hypothesis can be formulated as:

Operational risk influences the performance of banks that adopt fintech.

**H3: Operational risk influences the performance of banks that adopt fintech.**

Systemic risk within bank fintech refers to risks that not only impact the bank itself but also have repercussions for the entire financial system. In the context of bank fintech, systemic risk can originate from various sources and its effects can permeate throughout the financial sector. Since fintech operates via the internet and networks, any technical glitch or malicious attack can trigger systemic risk or widespread system failure (Yuan and Xu, 2020). This is corroborated by research from Bu et al. (2022), which demonstrates that fintech development amplifies systemic financial risks. Additionally, Vuýiniý's (2020) findings indicate that while

fintech offers benefits that enhance financial stability, it concurrently poses a potential negative impact on systemic risk, thereby potentially undermining financial stability.

From this discussion, the hypothesis that can be formulated is:

**H4: Systemic risk significantly influences the performance of banks that adopt FinTech.**

### **3. RESEARCH METHODS**

#### **3.1 Sample and data collection**

The study utilized primary data obtained through the distribution of questionnaires. Its objective was to examine the impact of implementing fintech risks in banking on the performance of Indonesian state-owned (BUMN) banks. Questionnaires were administered to employees of four Indonesian state-owned banks: Bank Mandiri, Bank Rakyat Indonesia (BRI), Bank Negara Indonesia (BNI), and Bank Tabungan Negara (BTN). Participants in the study were employees of these banks, selected using a purposive sampling technique based on criteria including a minimum tenure of 1-5 years at the bank and a minimum education level of Diploma 3.

#### **3.2 Variables and Measurement**

Performance refers to the results of a process that is evaluated and measured over a certain period of time in accordance with previously established provisions or agreements (Edison, 2016). This variable uses a balanced scorecard perspective and is measured by 20 (twenty) indicators. Cyber risk is the combination of the likelihood of an event occurring in an organization's information assets, computers and communications resources, as well as the consequences of that event for the organization (Bank for International Settlements and International Organization of Securities Commissions 2018). This variable is measured by 3 (three) indicators. Operational risk is the possibility of failure resulting from errors and poor internal processes, workforce and technical systems implemented in Fintech. This variable is measured by 3 (three) indicators. Outsourcing risks are any potential threats or uncertainties that may arise when an organization decides to contract or provide certain services or business functions to a third party. This variable is measured by 3 (two) indicators. Systemic risk is a disruption or failure in one financial institution or part of the financial system that can cause disruption or failure in other financial institutions or throughout the financial system (Bank for International Settlements and International Organization of Securities Commissions 2018). This variable is measured by 3 (two) indicators. Research quality was assessed using a 4-point Likert Scale (1= strongly disagree; 2= disagree; 3= agree; 4=strongly agree) as well as five

questions regarding participant demographic information using a nominal scale (Gender, Age, Position, Years of work, education level, and Department).

### 3.3 Data analysis technique

This research uses multiple linear regression data analysis techniques, where testing is carried out to see the relationship of a set of independent variables to the dependent variable, so that it can predict the average value of the dependent based on the value of the independent variable (Ghozali 2016).

Regression models in research:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Information :

Y = Performance at the Bank

$\alpha$  = Constant coefficient

$\beta$  = Regression coefficient

$X_1$  = Cyber risk

$X_2$  = Operational risk

$X_3$  = Outsourcing risk

$X_4$  = Systemic risk

$\varepsilon$  = Error coefficient

**Table-1: Variables and Indicators**

**Tabel 1 : Variabel dan Indikator**

<i>Variables</i>	<i>Indicators and items</i>	<i>Source</i>
<i>Performance Financial Perspective</i>	The bank's adoption of financial technology leads to an increase in market share	(Owusu, 2017)
	The Bank seeks by adopting FinTech services to reduce costs to a minimum	
	The bank's adoption of financial technology leads to higher profits from year to year.	
	The bank's adoption of financial technology leads to maximizing shareholders' wealth.	
	The bank seeks by providing financial technology services to achieve higher productivity and thus increase profits.	
<i>Customer Perspective</i>	The bank seeks to improve the quality of its services to meet the wishes and needs of customers.	(Owusu, 2017)
	The Bank treats complaints submitted by customers with great care.	
	The bank lowers the price of the service provided compared to the competitive market price.	

	The bank aims to increase the number of customers from year to year.	
	The Bank seeks to retain existing customers by responding to their needs.	
<i>Internal Operation Perspectives</i>	The bank reduces the time to complete the work.	(Owusu, 2017)
	The Bank seeks to make optimal use of the available resources.	
	The bank works to reduce routine and inappropriate repetition at work.	
	The bank trends to digital technology to get rid of paperwork.	
	The bank seeks to increase the level of quality of services	
<i>Education and growth perspective</i>	The Bank is keen to hold qualitative training courses for its employees to keep pace with the era of digital technology	(Owusu, 2017)
	The Bank is keen to update the technology used constantly.	
	The Bank seeks to develop employees' skills and improve the use of modern technologies according to the era of digital technology.	
	The bank is keen to continue to develop its creativity and to reserve a higher place among banks.	
	The Bank is constantly improving and developing its services.	
<i>Risks Cyber Risks</i>	The banking system is exposed to threats and security breaches when adopting financial technology services through mobile applications.	(Kaur et al., 2020)
	The banking system is exposed to penetrations and security threats when adopting financial technology services via online platforms	
	The banking system is exposed to large amounts of implicit data for violations when adopting financial technology techniques such as (customer account numbers, financial operations, financial charges ... and others)	
<i>Operational Risks</i>	Banks face the risks of maintaining the privacy of customer data when using mobile financial technology services.	(Aldasoro et al., 2020)
	Banks face the risks of maintaining information security and data confidentiality in providing financial technology services to customers via mobile phones.	
	Banks need to take the necessary precautions and measures when adopting financial technology to combat potential cybercrimes.	
<i>Outsourcing Risks</i>	The bank's use of outsourcing to provide FinTech services leads to risks in maintaining the confidentiality of the Bank's data and information.	(Supervision), B. (Basel C. on B, 2018)

	The bank's use of outsourcing to implement FinTech services leads to the risks of maintaining data privacy.	
	The use of outsourcing by banks may affect the bank's reputation in the event of service disruptions or security breaches related to the service provider.	
<i>Systemic Risks</i>	Bank systemic risks increase with the increasing adoption of FinTech services.	(Supervision), B. (Basel C. on B, 2018)
	When banks adopt fintech, Bank information technology risks lead to systemic risk.	
	Banks strive to reduce losses that result in systemic risk.	

**4. RESULTS AND DISCUSSION**

This research is quantitative research that uses a questionnaire as a data collection instrument. Data was collected from October 28 to 15 January 2024. In that period, 109 respondents were obtained.

**4.1 Respondent Demographics**

This section describes the demographics of respondents which describes the characteristics of respondents consisting of gender, age, education level, Years Experience and position of the respondent.

**Table 2: Respondent Characteristics**

<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Gender</b>		
Male	54	49,5%
Female	55	50,5%
<b>Age</b>		
21 – 30 Years	44	40,3%
31 – 40 Years	52	47,7%
41 – 50 Years	13	12%
> 50 Years	0	0%
<b>Level of education</b>		
Diploma 3 (D3)	21	19,3%
Strata 1 (S1)	83	76,1%
Strata 2 (S2)	5	4,6%
Strata 3 (S3)	0	0
<b>Banking Name</b>		
BRI	34	31,2%
Mandiri	40	36,7%
BNI	18	16,5%
BTN	17	15,6%
<b>Job</b>		

Frontliner	43	39,4%
Staff IT	14	12,8%
Supervisor	1	1%
Manager	9	8,2%
Others	42	38,5%
<b>Years Experience</b>		
1 - 5 years	54	49,5%
6 - 10 years	47	43,1%
11 - 15 years	8	7,3%
> 16 years	0	0%

Table 2 shows that the gender proportion of respondents between men and women is balanced. The majority of respondents were in the age range of 30 to 40 years with the highest level of education being a bachelor's degree (76.1%) with 43 frontliner positions or 39.4%. Respondents at Bank Mandiri dominated with a percentage of 36.7%. Based on length of service, respondents who had worked 1 - 5 years amounted to 54 people or 49.5%.

#### 4.1 Hypothesis Results

The data collected has gone through a quality test to see the seriousness of the respondents in answering questions and to look at situational factors at the time the research was conducted. The tests carried out were validity tests using Pearson Correlation and reliability tests using Cronbach's Alpha. This research uses multiple regression to test the hypothesis using the coefficient of determination (adjusted  $R^2$ ), model fit (F test), and partial test (t test).

**Table 3.  $R^2$  Test Results**

<b>Model Summary<sup>b</sup></b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,744 <sup>a</sup>	,554	,537	9,268

a. Predictors: (Constant), Risiko Sistemik, Risiko Operasional, Risiko Siber, Risiko Outsourcing

b. Dependent Variable: Kinerja

**Table 4. Test Results f**

<b>ANOVA<sup>a</sup></b>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11089,706	4	2772,427	32,275	,000 <sup>b</sup>
	Residual	8933,707	104	85,901		
	Total	20023,413	108			

a. Dependent Variable: Performance

b. Predictors: (Constant), Systemic Risk, Operational Risk, Cyber Risk, Outsourcing Risk

**Table 5. t Test Results**

Model		Coefficients <sup>a</sup>		Standardized Coefficients Beta	t	Sig.
		Unstandardized Coefficients B	Std. Error			
1	(Constant)	114,860	7,445		15,428	,000
	Cyber Risk	-2,980	,756	-,354	-3,942	,000
	Outsourcing Risks	-2,435	,550	-,410	-4,430	,000
	Operational Risk	-,536	,649	-,080	-,826	,410
	Systemic Risk	-,151	,510	-,019	-,295	,769

a. Dependent Variable: Kinerja

From table 3 it can be seen that the Adj value. R amounting to 0.537, which means that 53.7% of the variables Systemic Risk, Operational Risk, Cyber Risk, Outsourcing Risk influence company performance variables while the remaining 46.3% is explained by other variables that are not in this equation.

Based on the regression results in Table 4, it can be seen that the F statistical value in the model is 32.275 with a significance value of 0.000. A probability value of 0.000 is less than 0.05 indicating that the model used in the research is suitable for use.

In table 5, from the results of the partial t test, it is known that cyber risk and outsourcing risk influence on banking performance. This can be seen from the significance value of t/2 which is smaller than 0.05

### **Hypothesis 1: Cyber risks negatively impact the performance of banks that adopt FinTech.**

Based on the results of the hypothesis test in table 5, the cyber risk variable has a regression coefficient ( $\beta$ ) of -2.980 and a calculated t value of -3.942. Meanwhile, the significance value is 0.000 or below the value of 0.05, so it can be concluded that cyber risk negative and significant effect on banking performance or in other words the first hypothesis is **accepted**. When cyber risks increase, bank performance also decreases. These risks spell disaster for banking, such as data and information penetration and manipulation. It comes from cybercriminals and hackers. This can be done by hacking and penetrating customer data and violating their privacy when carrying out financial transactions over the Internet or it can also be through security threats that may occur in the banking system. A large amount of implicit data may be subject to breach when providing FinTech services through banks, such as customer account numbers, financial transaction numbers, money amounts, financial charges and other financial data. The results of this research are in line with the results of previous

research which shows that cyber risks negative effect on banking performance (Al-Shari and Lokhande 2023).

**Hypothesis 2: Outsourcing risk significantly influences the performance of banks that adopt FinTech.**

Based on the results of the hypothesis test in table 5, the outsourcing risk variable has a regression coefficient ( $\beta$ ) of -2.435 and a calculated t value of -4.430. Meanwhile, the significance value is 0.000 or below the value of 0.05, so it can be concluded that outsourcing risk has a negative and significant effect on banking performance or in other words the second hypothesis **is accepted**. Even though outsourcing risks provide efficiency benefits and focus on the core of the business, it still carries risks such as the risk of maintaining the confidentiality of data and strategic information that is important to the organization. Protecting data and information from leaks and security problems can cause financial institutions to lose their competitiveness, which can cause banking performance to decline.

**Hypothesis 3: Operational risk influences the performance of banks that adopt fintech.**

Based on the results of the hypothesis test in table 5, the outsourcing risk variable has a regression coefficient ( $\beta$ ) of -0.536 and a calculated t value of -0.826. Meanwhile, the significance value is 0.410 or above 0.05, so it can be concluded that outsourcing risk has a negative and insignificant effect on banking performance or in other words the third hypothesis is rejected. Every risk, including operational risk, has the potential to affect the performance of a financial institution. However, in certain situations operational risk may have a more limited impact or can be managed well so that it is not significant on banking performance. Human resource training and development improves employee skills in managing operational risks.

**Hypothesis 4: Systemic risk significantly influences the performance of banks that adopt FinTech.**

Based on the results of the hypothesis test in table 5, the outsourcing risk variable has a regression coefficient ( $\beta$ ) of -0.151 and a calculated t value of -0.295. Meanwhile, the significance value is 0.769 or above 0.05, so it can be concluded that systemic risk has no significant effect on banking performance or in other words the fourth hypothesis is **rejected**.

This shows that systemic risk, which is the risk of information technology and software technology in the banking business, has no effect on bank performance. The rejection of this hypothesis can be explained by the fact that FinTech digital technology is the latest digital development when used by banks which can increase information technology risks. However, necessary and expected preparations can be made to avoid these risks which may not affect banking performance. In addition, digital technology such as Blockchain has high technology to maintain data confidentiality and helps not penetrate it. Artificial intelligence techniques help in detecting and identifying risks and finding predicted risks, as well as big data technologies that analyze data and help detect any data or information that may pose a risk to the organization.

## **5. CONCLUSIONS, IMPLICATIONS, AND FUTURE RESEARCH**

This study investigates the impact of fintech risks on banking performance, focusing on four variables: cyber risk, outsourcing risk, operational risk, and systemic risk. Data for this research were collected using a questionnaire distributed via Google Forms through WhatsApp networks, completed by 109 respondents. The findings reveal a significant negative influence of cyber risk and outsourcing risk on banking performance. However, no significant impact was observed from operational risk and systemic risk on banking performance.

Several limitations of this research should be noted. First, the use of a questionnaire as the data collection tool may introduce biases, as respondents' interpretations of statement items could vary. To mitigate this, the researcher employed simplified language and avoided technical terms to ensure clarity. Control measures were also implemented by distributing the questionnaire through trusted friendship networks to target specific respondents.

Future research could explore similar variables using secondary data to compare findings with those obtained through primary data. Additionally, investigating other risks associated with fintech implementation in banks, such as strategic risk, money laundering risk, and terrorist financing risk, could provide deeper insights into their impacts on banking performance. Further studies could also comprehensively examine systemic risks and outsourcing risks related to fintech adoption in banking, potentially expanding the sample size to better represent the Indonesian information technology banking sector.

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