

FACTORS INFLUENCING THE ADOPTION OF FINANCIAL TECHNOLOGY AND NET BENEFIT IN INDONESIAN BANKING

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ABSTRACT

The aim of this research is to analyse the factors influencing the adoption of financial technology and net benefit in the banking industry. The method employed was a survey by distributing the questionnaires using convenience sampling among 200 employees working in Indonesian banks. Data was analysed using partial least square (PLS). The results show that performance expectancy, firm readiness, external pressure, and government supports have positive influences on the adoption of financial technology. Nevertheless, perceived risk negatively affects the adoption. In addition, the adoption of financial technology positively influences net benefit. This research results can assist the decision-making process not only for banking industry to take the good opportunity from financial technology but also for government to build regulation of financial technology.

KEYWORDS

Adoption, Financial Technology, Indonesian Bankings, Net Benefit

1. INTRODUCTION

The advanced development of technology enables various industries to grow more effectively and efficiently, including the financial services industry. In recent years, tech-based innovation in financial services industry called Financial Technology (FinTech), which integrates finance and technology in its processes, has been highly sought after in the banking industry (Hochstein, 2015). Currently, almost all financial service providers and e-commerce companies use electronic media to serve their customers. The support of information technology (IT) and favourable regulations has led to the exponential growth of FinTech. In this decade, technology, business models, talent, capital, and consumers are ready to start on the FinTech fever (Knight, 2020). One of the FinTech services which is in demand is e-payment (OJK, 2017). E-payment-based FinTech allows users or customers to quickly and easily access banking services, commonly referred to as e-banking.

The adoption of Fintech presents both opportunities and challenges for businesses. There are several factors influencing the adoption of Fintech in banking, including performance expectancy, which has a positive influence on supporting the use of electronic services (Alraja et al., 2016) and plays a crucial role in technology adoption (Alraja, 2015). Conversely, the adoption of electronic services also faces certain risks. Risk perception is one of the factors that can hinder the implementation of internet banking (Marafon et al., 2018), such as the fear of account hacking by cybercriminals, which can have a negative impact on the adoption of Fintech in banking (Laukkanen & Kiviniemi, 2010). The readiness of an organization to adopt Fintech is a consideration both technically, by providing cutting-edge IT infrastructure, and financially, by having adequate funding for Fintech adoption (Mehrtens et al., 2001). External factors become another factor that influences an organization's decision to adopt new technology (Orlikowski, 1993). In line with this, government support in the form of strong cybersecurity law enforcement to protect customers using online services must be effectively implemented (Chong et al., 2010) to enhance customer trust and encourage Fintech adoption.

There are several theories about technology adoption, one of which is the Technology-Organization-Environment (TOE) theory. TOE classifies three contexts that influence technology adoption, namely technology, organization, and environment (Tornatzky & Fleischer, 1990). This theory has been used to examine the factors that affect technology adoption. AlBar & Hoque (2019) studied the adoption

of cloud ERP in relation to technological contexts such as relative advantages, compatibility, and complexity; Abed (2020) investigated the adoption of social commerce in relation to technological contexts including usage and security perceptions, and Park & Kim (2021) also examined the adoption of Big Data in relation to technological contexts that include perceived benefits, system usability, compatibility, security, and privacy.

The adoption of Fintech can be beneficial, especially for banking organizations. This is in line with the theory of Information System Success Model (ISSM), which states that the adoption of information technology can bring benefits to organizations or individuals (DeLone & McLean, 2003). The ISSM theory is also widely used to explain the success of IT implementation, such as the adoption of Fintech in Go-pay (Nurherwening et al., 2021). Based on the description, the researchers used the TOE Theory to investigate the factors influencing the adoption of Fintech in the banking industry. This study aligns the technological context with perceived performance expectations and risks; the organizational context with organizational readiness; and the environmental context with external pressures and government support. The research integrates with the ISSM Theory to demonstrate that the adoption of Fintech can affect the net benefits received by both organizations and individuals. The integration of the TOE and ISSM theories with the research variables has not been extensively explored in previous studies. This research takes the perspective of the banking sector in the adoption of financial technology, which has been relatively unexplored in Indonesia. Previous research has mostly focused on the perspective of users, particularly SMEs (Namira, 2022; Riyanti et al., 2022).

The research outline consists of an introduction followed by a literature review and hypothesis development, where the model is tested quantitatively. The next section presents the hypotheses, followed by sample presentation and data analysis using PLS (Partial Least Squares), as well as the research findings. The last section is the discussion and conclusion.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Technology, Organization, Environment (TOE) Model

The TOE framework classifies three dimensions which influence the decision of an organization to use technology innovation, namely technological, organizational, and environmental. Technological involves the sorts of technology used and relevant technical skills owned by an organization. Meanwhile, organizational refers to the internal size of an organization (Oliveira & Martins, 2009). Next, environmental encompasses the external scope where a company runs its business (industry, competitors, and trading partners) (Tornatzky & Fleischer, 1990). This research employs TOE with the development of constructs used, including performance expectancy, risk perception, firm readiness, external pressure, and government support.

2.2 Information Systems Success Model (ISSM)

ISSM is a model used to test the success of an IT adoption which was first introduced by DeLone-McLean in 1992. ISSM explains that system quality estimates the technical success, while information quality measures semantic success. Meanwhile, the technology use, user satisfaction, individual and organizational effects are included in the level of effectiveness. In 2003, DeLone-McLean developed the theory which explained that information quality, system quality, and service quality can affect the interest to use, use, and user satisfaction of information technology. In addition, a high level of use and user satisfaction of IT affects the net benefit received where the user satisfaction can influence the interest to use IT (DeLone & McLean, 2003). This research adopts some of relevant ISSM constructs to elaborate the influence of net benefit on Fintech adoption.

2.3 Performance Expectancy and Fintech Adoption

Performance expectancy is a condition where an individual believes in the use of a system to benefit his performance (Venkatesh et al., 2003). In Ghana, performance expectancy has been found to increase the interest in adopting an electronic voting system (Mensah, 2020). Alraja (2015) reveals that performance expectancy can be assumed as the crucial indicator of IT adoption because it shows that the adoption can

increase the productivity and performance of a company or a bank and enable the bank to provide faster services. Accordingly, the first hypothesis is formulated as follows.

H1: Performance expectancy has a positive influence on Fintech adoption.

2.4 Perceived Risk and Fintech Adoption

Perceived risk is the main obstacle in any innovation (Taylor, 1974), and it perches on the top level in financial service innovation (Mitra et al., 1999). The previous research performed by Luarn and Lin (2005) on mobile banking and banking technology indicated several risks, one of which was privacy and security issue of mobile banking of some customers. Perceived risk is revealed to have negative effect on the internet banking adoption by the customers in India (Chauhan et al., 2019). Therefore, the second hypothesis is as follows.

H2: Perceived risk has a negative influence on Fintech adoption.

2.5 Firm Readiness and Fintech Adoption

Firm readiness is an adequate experience of a company in terms of information technology and finance to adopt an innovation in technology. Firm readiness positively influences the adoption of cloud computing (Hiran & Henten, 2019). Similarly, The SMSEs readiness affects the adoption of cloud computing in the industry 4.0 context (Sari et al., 2020). To conclude, the third hypothesis is assumed as follows.

H3: Firm readiness has a positive influence on Fintech adoption.

2.6 External Pressure and Fintech Adoption

External pressure is an indispensable factor from the sources in the surrounding environment (Chwelos et al., 2001). The previous studies mention that external pressure is one of the drives for an organization to adopt new technology (Nelson & Shaw, 2003). External pressure also positively influences the adoption of Performance Measurement System in Yogyakarta Regional Government (Murti et al., 2021). Hence, the fourth hypothesis is proposed as follows.

H4: External pressure has a positive influence on Fintech adoption.

2.7 Government Support and Fintech Adoption

Government support and policy refers to the extent of government activities to influence the company and promote the industry. Government support in relation to open public data and regulatory policy can encourage the adoption of big data (Park & Kim, 2021). Government support positively influences the technology adoption and the interest in continuous use of the technology (Kiwanuka, 2015). Government regulation to support the adoption of technology is one of the measures, and it is found to be influential in the adoption of Internet of Things (IoT) in start-up industry (Purnomo et al., 2021). Therefore, the fifth hypothesis is proposed as follows.

H5: Government support has a positive influence on Fintech adoption.

2.8 Net Benefit and Fintech Adoption

Fintech adoption is the management decision altogether to innovate and develop the online transaction system. The empirical studies have been conducted in several countries and indicated that the banks adopting Fintech show better performance. Thus, Fintech adoption has a positive effect on bank performance (Siddik et al., 2016). Another research conducted by Danuarta and Darma (2019) shows that the adoption of technology positively influences the net benefit of Gopay system. With regard to the explanation, the sixth hypothesis is formulated as follows.

H6: Fintech adoption has a positive and significant influence on net benefit.

3. RESEARCH METHOD

This study employs quantitative method using primary data collected from a survey implementing questionnaire technique. The target population for this study was limited to employees working in the most efficient and the most reliable bank in Indonesia, with the asset category of Rp.100T and more than Rp.100T, including BCA, BRI, Mandiri, and BNI (Tempo.com. 2018). The sampling technique was non-probability convenience sampling. A total 240 questionnaires were distributed and collected online via Google Form, only 200 questionnaires were usable and analyzed using Partial Least Square (PLS) by *SmartPLS* 3.3.9. Each indicator of every variable in this research was measured using 6-point Likert scale. The variables examined include performance expectancy using 3 question items from Martin et al (2014); perceived risk using 4 question items, firm readiness using 4 question items, and external pressure using 3 question items from Xu et al., (2009); government support using 4 question items from Tan & Teo (2000); fintech using 5 question items from Zhou et al., (2010); and net benefit using 3 question items from DeLone & McLean (2003).

4. FINDINGS AND DISCUSSION

4.1 Respondent Characteristics

The number of respondents in this research is 200 consisting of 161 staff (80.5%), 15 manager assistants (7.5%), 13 managers (6.5%), 2 director assistants (1%), and others (4%). The gender distribution is 33.5% of male and 66.5% of female. The majority of the respondents' educational level is undergraduate degree totalling 151 (75.5%), followed by 3-year diploma numbering 25 (12.5%), and senior high school as many as 16 (8%). Referring to the questionnaire responses collected, there was 48% of the companies which already adopt Fintech for 6 years, meanwhile, 141 respondents (70.5%) did more than six online transactions using Fintech in a month.

4.2 Validity Measurement

The results of convergent validity show that the item loading factor scores of more than 0.708 which means that convergent validity minimum value is met. In addition, AVE score of each variable was more than 0.50 as required, therefore, the indicators of this research instrument could be concluded as valid and convergently adequate. The next validity test conducted was discriminant validity which could be analyzed using Heterotrait-Monotrait Ratio (HTMT). HTMT has better sensitivity level compared to traditional validity test like Fornell-Larcker Criterion and Cross Loadings (Henseler et al., 2015). If the HTMT score is high, the issue of discriminant validity is detected. HTMT can be estimated using $HTMT_{90}$ criteria and $HTMT_{inference}$ criteria where if the score of HTMT less than 0.90 and the upper bound of confidence interval less than 1, the research instrument items pass discriminant validity test (Hair et al., 2019). The values of HTMT are presented in Table 1.

Table 1. Heterotrait-Monotrait Ratio (HTMT), Composite Reliability (CR), and R-Square

Construct	EP	FA	FR	GS	NB	PE	PR
EP							
FA	0.465 CI90 (0.191;0.740)						
FR	0.526 CI90 (0.250;0.792)	0.806 CI90 (0.526;0.912)					
GS	0.309 CI90 (0.064;0.635)	0.603 CI90 (0.353;0.771)	0.593 CI90 (0.303;0.826)				
NB	0.383	0.894	0.747	0.633			

	CI90 (0.104;0.677)	CI90 (0.694;0.974)	CI90 (0.461;0.888)	CI90 (0.375;0.790)			
PE	0.220 CI90 (0.040;0.569)	0.544 CI90 (0.167;0.882)	0.433 CI90 (0.072;0.786)	0.338 CI90 (0.032;0.669)	0.548 CI90 (0.169;0.860)		
	0.111 CI90 (0.069;0.321)	0.332 CI90 (0.166;0.506)	0.235 CI90 (0.074;0.434)	0.345 CI90 (0.112;0.556)	0.321 CI90 (0.139;0.523)	0.168 CI90 (0.092;0.441)	
CR	0.897	0.893	0.872	0.931	0.894	0.944	0.904
R-Squared		0.558			0.559		

Table 1 shows the scores of HTMT less than 0.90, with the highest HTMT score reaching 0.894, and the upper bounds of confidence interval (CI) less than 1, with highest bound reaching 0.974. Hence, the research constructs could be deemed passed the discriminant validity test or valid.

4.3 Reliability Test

Reliability test can be performed by observing the Composite Reliability (CR) value. The value of CR between 0.70 and 0.95 can avoid redundant items and be concluded that the construct is reliable (Hair et al., 2019). Table 1 shows that all constructs' CR values were more than 0.70 and less than 0.95, so all constructs of this research were reliable.

4.4 R-Squared (R^2)

R-Squared is used to determine the proportion or percentage of total variance of dependent variable. The R^2 values of 0.75, 0.50, and 0.25 indicate substantial, moderate, and weak criteria (Hair et al., 2019). Table 1 demonstrates the R^2 values of Fintech adoption construct of 0.558 and net benefit of 0.559, therefore, it can be categorized into moderate criteria.

4.5 Goodness of Fit (GoF) Test

Goodness of Fit (GoF) test is conducted by finding the square root of multiplication between AVE (communality) average value and R^2 average value (Henseler & Sarstedt, 2013). GoF values of 0.10, 0.25, and 0.36 are considered small, moderate, and large respectively (Cohen, 1988). The estimation of GoF in the research is as follows.

$$\text{GoF} = \sqrt{\text{Communality} \times \bar{R}^2} = \sqrt{0,6565 \times 0,5585} = 0,6055$$

The measurement results in the value of GoF as much as 0.6055 which falls under the large category. Hence, it can be concluded that this research produces a robust model.

4.6 Hypothesis Test Results

Structural model was used to test the hypotheses by using path coefficient and T-test (P-value). The hypothesis test results are presented in Table 2.

Table 2. Hypothesis Test Results

Hypothesis	Relation	Path Coefficient	P-Value	Result
Performance Expectancy (H1)	PE → FA	0.234	0.002	Supported
Perceived Risk (H2)	PR → FA	-0.141	0.003	Supported
Firm Readiness (H3)	FR → FA	0.405	0.000	Supported
External Pressure (H4)	EP → FA	0.147	0.004	Supported
Government Support (H5)	GS → FA	0.169	0.010	Supported
Net Benefit (H6)	FA → NB	0.749	0.000	Supported

Significance level < 0.01

4.7 Discussion

4.7.1 Performance Expectancy on Fintech Adoption

Performance expectancy significantly influences Fintech adoption, indicating that if bank staff perceive the expected benefits, adoption is more likely. This perception aligns with TAM's perceived usefulness, a key attribute shaping attitudes toward system usage (Chau et al., 2004). Users believe e-banking enhances performance and are more motivated to use it (Ghalandari, 2012). Similar research by Abrahão et al. (2016) supports performance expectancy as a predictor for new technology adoption. Likewise, Duarte & Pinho (2019) found that performance expectancy crucial for Mobile Health adoption. Consequently, banks should assess if fintech meets performance expectations to benefit the bank and customers in transaction effectiveness and efficiency.

4.7.2 Perceived Risk on Fintech Adoption

Perceived risk negatively influences the adoption of Fintech. This indicates that the more risks a bank perceives, such as financial loss, fraud, and privacy breaches, the more reluctant the bank to adopt Fintech. The anxiety in a person who is doing online transaction can negatively affect the acceptance of the person toward online service (Veeramootoo et al., 2018). This result is seconded by Ryu (2018) who found that perceived risk negatively influences interest in adopting new technology (mobile banking). Additionally, Khayer et al. (2020) reveal the negative effect of perceived risk on Cloud computing.

4.7.3 Firm Readiness toward Fintech Adoption

Firm readiness positively influences the adoption of Fintech. Bank readiness in terms of finance, technology, human resources, and top management support can encourage the adoption of Fintech. Firm readiness is categorized into three aspects, including finance, technology, and human resources (Herath et al., 2020). This finding is supported by the studies performed by Herath et al. (2020) which states that the firm readiness positively influences the adoption of technology. Consequently, banks must ensure the financial, technology, and human resources preparation by giving trainings to their employees to improve their skills. Thus, comprehensive preparation of a company will make the company ready in adopting Fintech.

4.7.4 External Pressure on Fintech Adoption

External pressure positively influences Fintech adoption. This indicates that the existence of external pressure, especially from the competitors which already adopt Fintech, can increase the likelihood of a bank to adopt Fintech. The tough competition in banking industry forces the banks to improve their service innovations to attract more customers. The external arena where a bank runs its business (i.e. industry, competitors, and trading partners) might influence the diffusion of innovations in an organization (Tornatzky & Fleischer, 1990). One of the main stakeholders of a company is customers, and customers' trust is a crucial aspect in business environment nowadays (Herath et al., 2020).

This research result is endorsed by Nurlinda et al. (2020) in the context of e-commerce adoption and by Herath et al. (2020) in relation to the adoption of Information Security Solutions. Evidently, this implies that banks must keep up with evolving business competition and embracing the advancements of the digital era. Companies must be responsive to the recent changes in business sector. The large number of banks in Indonesia forces those banks stay competitive, and gaining the customers' trust is of paramount importance (Herath et al., 2020).

4.7.5 Government Support in Fintech Adoption

Government support positively affects the adoption of Fintech. This result indicates that government endorsement in the forms of facilities and regulations can increase the likelihood of Fintech adoption by the banks. Government support and regulatory policies stimulate industry growth and encourage the adoption of innovative technologies like big data. If the government enacts the regulation on technological innovation compliance where the companies that violate the policy must pay large amount of money, the companies will surely adopt the technology which is in the context is IoT (Purnomo et al., 2021).

This result agrees with the study carried out by Purnomo et al. (2021) which states that government support in the form of regulation has a positive effect on the adoption of internet of things in start-up industry. Similarly,

the study conducted by Park and Kim (2021) has revealed that there is a positive influence of the government support and policy on the adoption of big data. Based on the results, the government in Indonesia should enhance fintech adoption by improving internet speed, implementing regulations to encourage the adoption, and data protection for secure transactions. Furthermore, collaborative efforts between the banking sector and the government are essential to ensure convenience and customer protection.

4.7.6 Influence of Fintech Adoption on Net Benefit

Adoption of Fintech significantly and positively influences net benefit which means that the banks in this research which represented by their employees assume that adopting Fintech can benefit the banks and customers. Fintech presents a new opportunity to empower the community by increasing the transparency to reduce costs or cut off the intermediary agent and by making the information more accessible (Zavolokina et al., 2016). Fintech adoption creates both challenge and opportunity. It has risks, but it is not the only underlying factor for its adoption context because there are also the benefits to be the incentive of the adoption (Ryu, 2018).

This result is corroborated by the findings of Nurherwening et al. (2021) in relation to the net benefit of Gopay and Wibowo (2020) regarding e-Local Return's impact on net benefit which can be interpreted as tax compliance. Despite the challenges, adopting fintech brings significant benefits to both banks and customers, making it an attractive proposition and enabling more effective and efficient transaction.

5. CONCLUSION

Based on the statistical tests, it can be concluded that in the technological context, performance expectancy positively influences the adoption of Fintech, while perceived risk negatively influences the adoption. In the organizational context, firm readiness has a positive effect on Fintech adoption, and in the environmental context, both external pressure and government support have positive influences on the adoption of Fintech. Moreover, the adoption of Fintech positively affects net benefit. These findings contribute to the existing literature in three ways: (1) they provide insights for future research on the adoption of information technology, especially Fintech; (2) they enrich the theories on the adoption of information technology by integrating the TOE and ISSM models, which are currently limited in number; and (3) they enhance the existing model of information technology adoption by presenting a robust research model.

The implications of this study for banking include: (1) the need to keep Fintech performance during adoption to enhance operations and provide better security for the bank and customer data, in order to attract more customers and compete effectively with other banks; (2) the recommendation for banks adopting Fintech to prepare adequate funding, management support, and employee training; and (3) the expectation for banks to adopt Fintech, as it offers benefits that can make banking transactions more effective and efficient. For the government, this study suggests encouraging and supporting the adoption of Fintech by improving internet facilities and regulations.

However, this research also has some limitations: (1) the sample size is limited to 200 respondents from specific areas, which may not represent a comprehensive study; (2) the integration of the TOE and ISSM models is incomplete, as some variables were not included. The future studies are suggested to: (1) expand the scope of research samples to cover more areas; (2) include additional relevant variables, such as customer perception and perceived cost.

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