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Factors Determining Adoption of Fintech Peer-to-Peer Lending Platform: An Empirical Study in Indonesia*

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Abstract

Platform lending or online lending, sometimes called peer-to-peer (P2P) lending, arose due to the digital revolution to meet people's requirements for simple fund borrowing. It quickly became an alternative to other traditional lending techniques, for example, loans banks. Along with the growth of P2P lending, several academics have investigated how information technology is used in financial services, emphasizing extended application methods. This study proposes an enhanced technology acceptance model (TAM) that investigates how consumers embrace P2P lending platforms by using quality of service and perceived risk as drivers of trust, relative advantage and compatibility as drivers of perceived usefulness. For the purpose of this study, we created a questionnaire, distributed it to clients of P2P lending platforms and fintech services in general in cities in Java, Indonesia. We received 290 replies to our questionnaire. The data was analyzed to test the hypotheses using structural equation modeling (SEM). The findings show that consumers' trust, relative advantage, perceived usefulness, and perceived ease of use in P2P lending platforms substantially affect their views toward adoption. The research's findings are useful for fine-tuning platform marketing strategies and putting strategic goals into action.

Keywords: Adoption Intention, Peer-To-Peer Lending, Structural Equation Modeling, Technology Acceptance Model

JEL Classification Code: M13, G23, D91

1. Introduction

According to an article released in October 2019 by the Asian Development Bank Institute, peer-to-peer (P2P) lending is a thriving business in Indonesia's fast-growing financial technology (fintech) industry, accounting for 43% of the country's fintech companies (Batunanggar, 2019). Credit disbursements via the P2P lending network reached IDR 22.67 trillion in December 2018, representing 645% year-on-year growth. These disbursements came from 101 local P2P platforms registered with the Indonesian Financial Services Authority (OJK). Since then, the sector has grown steadily, with IDR 146.25 trillion expected in November 2020, representing a 96.19% year-on-year rise (OJK, 2020). Indonesia's thriving P2P lending sector has piqued the interest of local and global investors, who have provided millions of dollars for domestic firms.

Zopa is the first platform to develop P2P lending and be a leader in this field. It is a United Kingdom platform and operates exclusively for United Kingdom citizens by connecting borrowers directly to lenders (Bachmann et al., 2011). As of May 2020, 5 billion individual loans was borrowed from more than 470,000 UK customers were secured through Zopa, bringing income to lenders and helping to realize borrowers' personal goals and aspirations (Zopa, 2020). In 2006, two of the largest P2P credit platforms in the United States, Lending Club, and Prosper, emerged gradually, and the number of platforms is increasing in the

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United States, Europe, and China. Hundreds of platforms borrow millions of dollars now.

A comprehensive survey of P2P lending by Zhao et al. (2017) specifically summarises some of the world's major P2P lending platforms and provides a systematic taxonomy for them, comparing different types of working mechanisms in detail. Some critical challenges were found which pose problems in this area which needs to be addressed. These challenges include pricing, mechanism enhancement, risk management, privacy preservation, and personalization. However, research from the user's perspective on adopting P2P lending is still rare to find in the last six years. Some research with the user perspective in Indonesia has been done by Kurniawan (2019), who used individual as the user perspective, and Rosavina et al. (2019) who used SME as the user for their research.

Considering the gap in the literature, the purpose of this research is to enrich the understanding of the user's intention as an individual in adopting a P2P lending platform. Understanding user behavioral intentions by considering determinant factors when supplying users with financial and technology products is critical to building a platform and refining the marketing strategy of the platform. This research applied TAM to understand the effect of some variables for predicting the adoption of new technologies at an individual user (Davis, 1985). Among the models in adoption technology at end-users, TAM was found to perform the best comparision with TPB (the theory of planned behavior) or UTAUT (the unified theory of acceptance and use of technology) (Rahman et al., 2017).

2. Literature Review and Hypothesis Development

The finance sector all over the world has been leveraging the advancement of information technology, resulting in an innovation known as financial technology or fintech (Das, 2019). It is a rapidly evolving and dynamic sector with several business strategies (Dorfleitner et al., 2017). Fintech has transformed the way financial service companies work and engage with their clients. This changes the paradigm where conventional financial services result in significant disruption (Nguyen et al., 2020), (Dang & Vu, 2020). P2P lending platform is defined as a "financial exchange" that occurs directly between individuals without direct intermediation of a traditional financial institution as a facilitator (Omarini, 2018). The new internet-based service that allows users to borrow money directly from one another (Zhao et al., 2017), (Lee, 2017), (Zhang & Wang, 2019), (Kim, 2020) and has now become a key business model and brought about disruption in the financial sector in general.

To explain the impacts of factors on consumer behaviors and intentions, Davis (1985) introduced TAM based on the theory of reasoned action (TRA) model (Ajzen & Fishbein, 1970). TAM suggests that perceived usefulness (PU) and perceived ease of use (PE) describe individual users' adoption intentions. PU is defined as an individual perception that using a specific system would increase job performance. The degree to which individuals feel that the system will be easy to use is referred to as PE. Since its original publication, scholars have consistently supported TAM in numerous settings, and it has been utilized extensively in technology adoption studies throughout the last decades. TAM could be a flexible model that can be changed or expanded in a variety of ways. As a result, numerous modifications, including other theories, have emerged with the goal of utilizing fintech prior research on mobile P2P lending applications (Lee, 2017), fintech services for bank users (Hu et al., 2019), and fintech and banking (Lien et al., 2020).

Rogers (1995) created the diffusion of innovation model to identify the five elements that influence the acceptance of any innovation and its degree of success. Thus, while analyzing the innovation potential, whether it is a new product or service, measuring the advantages given by the innovation against the five criteria will assist in identifying possible hurdles in its adoption and areas for further research. Innovation diffusion theory (IDT) consists of five essential innovation characteristics: compatibility, complexity, observability, relative advantage, and trialability. A prior study revealed that only compatibility (CO), relative advantage (RA), and complexity were consistently associated with the adoption of technological advances in a meta-analysis of 75 diffusion papers (Tornatzky & Klein, 1982).

Based on previous research and theoretical concepts, this study uses the TAM and some factors of IDT, trust, quality of services, and perceived risk to analyze the adoption intention of fintech P2P lending platform. The dependent variable is behavioral adoption intention (AI), whereas perceived usefulness (PU), perceived ease of use (PE), trust (TR), perceived risk (PR), quality of service (QS), relative advantage (RA), and compatibility (CO) were the independent variables. A graphical representation of the proposed hypothesis is presented in Figure 1.

2.1. Perceived Usefulness (PU)

PU is a factor heavily used in the TAM concerning the adoption of information systems. It is defined as how a customer's task efficiency would improve if they used this new technology (Davis, 1985). In this study, PU refers to the evidence that consumers prefer to utilize the service if they believe fintech P2P lending will have a positive impact

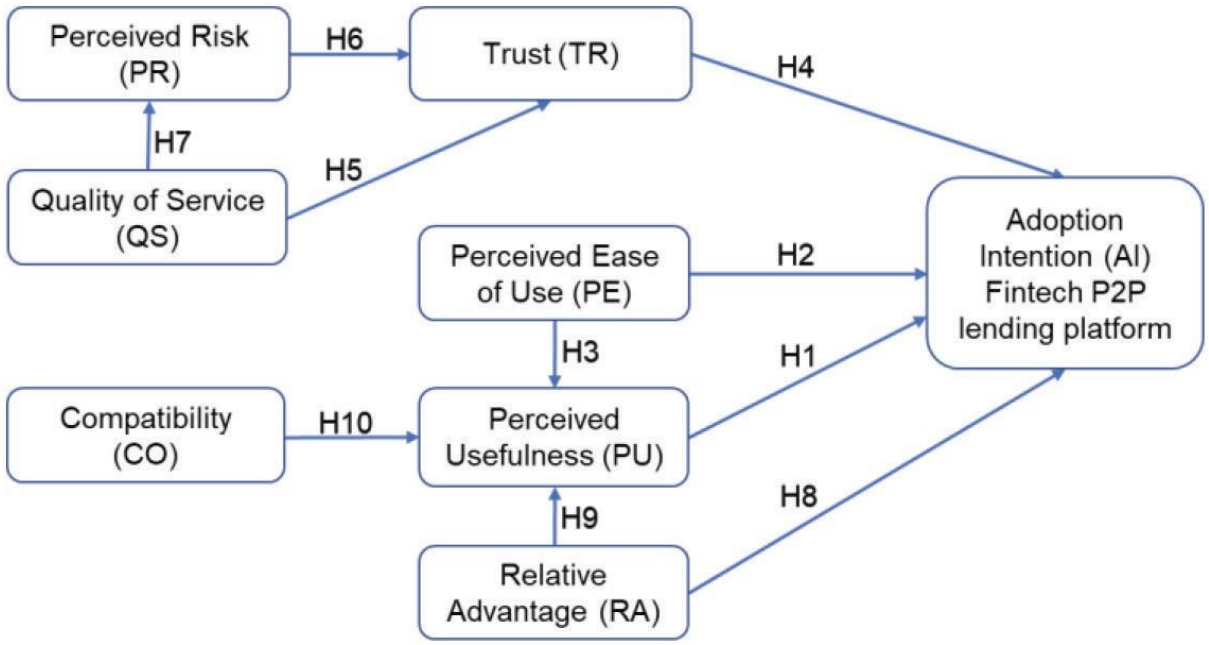

Figure 1: Proposed Hypothesis Model

(Lee, 2017). Extensive empirical research on information technology adoption over the last decade has revealed that PU may have a beneficial influence on consumers' intentions toward fintech and banking (Lien et al., 2020), mobile wallets (Singh & Sinha, 2020), smart home applications (Hubert et al., 2019), smart applications for learning (Khlaisang et al., 2019), and Uber mobile applications (Min et al., 2019). As a result, the following hypothesis was formed based on prior research:

H1: *PU has a positive influence on adoption intention (AI).*

2.2. Perceived Ease of Use (PE)

Another critical component in the TAM is PE, which is defined as the amount of work required to use this new technology (Davis, 1985). In this study, PE refers to the degree to which customers are at ease and willing to learn how to utilize the fintech P2P lending platform. Several previous studies have shown a strong link between PE and attitudes regarding new technology adoption on fintech and banking (Lien et al., 2020), smart home applications (Hubert et al., 2019), smart applications for learning (Khlaisang et al., 2019), Uber mobile applications (Min et al., 2019), mobile P2P lending applications (Lee, 2017), and mobile banking (Raza et al., 2017). Furthermore, PE is much more significant than PU in new technology adoption attitudes on mobile learning (Kumar et al., 2020), smart home applications (Hubert et al., 2019), mobile banking (Raza et al., 2017), and P2P lending applications (Lee, 2017). As a result, the following hypotheses were proposed based on prior research:

H2: *PE has a positive influence on AI.*
H3: *PE has a positive influence on PU.*

2.3. Trust (TR)

TR, according to Lewis and Weigert (1985), is a complex, multifaceted entity that plays an essential role in commercial interactions. TR has always been focused on adoption and is frequently utilized as a secondary founda-tion for attracting consumers in addition to PU and PE. Because of the extensive and high-dimensional data involved in the service, the function of TR in financial technology application scenarios is even more essential. Service quality and information quality, for example, are two factors that affect TR in fintech innovation adoption (Ryu & Ko, 2020), brand image, government support, perceived risk (Hu et al., 2019). Therefore, it is essential to study how TR affects the attitudes of potential users and their willingness to adapt and which factors can affect TR. As a result, the following hypothesis was proposed:

H4: *TR has a positive influence on AI.*

2.4. Quality of Service (QS)

QS at its most basic relates to a customer's comparison of service expectations with perceptions of what the service provider provides (Grönroos, 1984), (Parasuraman et al., 1985). QS is a broad assessment of a service that influences business performance, adoption intentions, and customer satisfaction (Jaiyeoba et al., 2018). Prior studies have demonstrated that QS has a positive impact on TR (Ryu & Ko, 2020), (Goutam & Gopalakrishna, 2018), and a negative impact on PR (Ryu & Ko, 2020), (Chen et al., 2017), (Ghotbabadi et al., 2016). As a result, the following hypotheses were proposed based on prior research:

H5: *QS has a positive influence on TR.*
H6: *QS has a negative influence on perceived risk (PR).*

2.5. Perceived Risk (PR)

According to Schierz et al. (2010), PR is the anticipation of losses. Ko et al. (2004) defined PR as consumers' perceptions of the variable and contradictory results of purchasing a product or service. Consumer behavior may be understood using PR theory. PR is a type of TR deficiency, and most researchers feel that PR is the primary factor influencing technology adoption. (Ghotbabadi et al., 2016), (Raza et al., 2017). According to a previous study, risk perception is the most crucial element influencing cloud technology adoption (Ho et al., 2017); mobile banking (Raza et al., 2017), (Gumussoy et al., 2018); and fintech services (Hu et al., 2019). As a result, the following hypothesis was formed based on prior research:

H7: *PR has a negative influence on TR.*

2.6. Relative Advantage (RA)

RA is the degree to which a person believes a new invention to be superior to its predecessors (Rogers, 1995). The perceived RA of an invention by members of a social system is positively related to its adoption rate. According to prior studies, RA has a positive impact on AI (Yuen et al., 2020), (Mombeuil, 2020), (Min et al., 2019), (Khlaisang et al., 2019) and a positive impact on PU (Yuen et al., 2020), (Min et al., 2019), (Khlaisang et al., 2019). As a result, the following hypotheses were proposed based on prior research:

H8: *RA has a positive influence on AI.*
H9: *RA has a positive influence on PU.*

2.7. Compatibility (CO)

CO is described as the degree to which an innovation is consistent with an individual's current values, experiences, and requirements (Rogers, 1995). It evaluates the degree of compatibility between an invention and an individual's existing technological and social surroundings (Wang et al., 2018). High congruence suggests that potential adopters need to make fewer adjustments in their routines or exert less effort while adopting an innovation, which is related to PU (Yuen et al., 2020), (Singh & Sinha, 2020), (Min et al., 2019), (Hu et al., 2019), (Hubert et al., 2019), (Gumussoy et al., 2018). As a result, the following hypothesis was formed based on prior research (Figure 1):

H10: *CO has a positive influence on PU.*

3. Research Methodology

This paper responds to the issues of previous studies through the use of a questionnaire that made the necessary expansions and modifications based on the features of fintech P2P lending platforms. The scale consisted of eight variables as external influencing factors, and each variable was composed of four to six measurement variables. Data was collected using an online survey method which distributed questionnaires using Microsoft Form to 290 respondents in Java, Indonesia, from September to December 2020. The survey subjects were randomly selected from a group of consumers who have used fintech P2P lending, mobile banking, internet banking, and other fintech services. The fintech P2P lending platform is defined in the questionnaire as innovative financial services that use new technological tools such as cloud computing, big data, and mobile technology, provided by some of the official fintech P2P lending platforms.

Following the first selection, faulty questionnaires with insufficient response times and random responses were eliminated, leaving 258 acceptable responses for an effective response rate of 88.96 %.

4. Results and Discussion

The data was analyzed in three stages: exploratory factor analysis (EFA) and reliability analysis, confirmatory factor analysis (CFA), structural equation modeling (SEM) and hypothesis testing. The first stage was performed on all items in a questionnaire using SPSS version 23. As shown in Table 1, all latent variables' Cronbach's alpha, CR, and AVE were greater than the critical values, suggesting that the model has excellent reliability and convergent validity.

SEM is an extension of CFA that tests particular hypothesized connections between latent variables. SEM

Table 1: Reliability and Validity Measures

Variables	Items	Factor 1	Factor 2	Cronbach's Alpha	AVE	CR
PU	PU1	0.698		0.756	0.511	0.838
	PU2	0.822				
	PU3	0.619				
	PU4	0.703				
	PU5	0.717				
PE	PE1	0.738		0.724	0.503	0.800
	PE2	0.605				
	PE3	0.823				
	PE4	0.652				
	PE5		–0.906	0.822	0.810	0.895
	PE6		–0.894			
TR	TR1	0.748		0.723	0.619	0.830
	TR4	0.833				
	TR5	0.777				
QS	QS3	0.903		0.714	0.741	0.851
	QS4	0.817				
PR	PR1		0.916	0.705	0.745	0.853
	PR2		0.806			
	PR3	0.667		0.714	0.618	0.828
	PR4	0.862				
	PR5	0.816				
RA	RA1		0.658	0.709	0.636	0.838
	RA5		0.862			
	RA6		0.856			
	RA2	0.870		0.843	0.764	0.906
	RA3	0.927				
	RA4	0.822				
CO	CO3	0.863		0.704	0.742	0.852
	CO4	0.859				
AI	AI2	0.817		0.742	0.621	0.830
	AI3	0.795				
	AI4	0.750				

methods with AMOS graphics were used to assess the fit of the proposed model's measurement and structural components. As shown in Figure 2, the SEM model was utilized to generate the standardized path coefficient (β) and t value, which were used to evaluate the given hypotheses.

As demonstrated in Table 2, all the research hypotheses were accepted, showing statistically significant path coefficients (t value > 1.96, P value < 0.05). The relationship between the dependent variable and the independent variable directly, AI was significantly impacted by PU (H1: $\beta = 0.243$, $t = 2.692$), the result is consistent with the basic assumptions

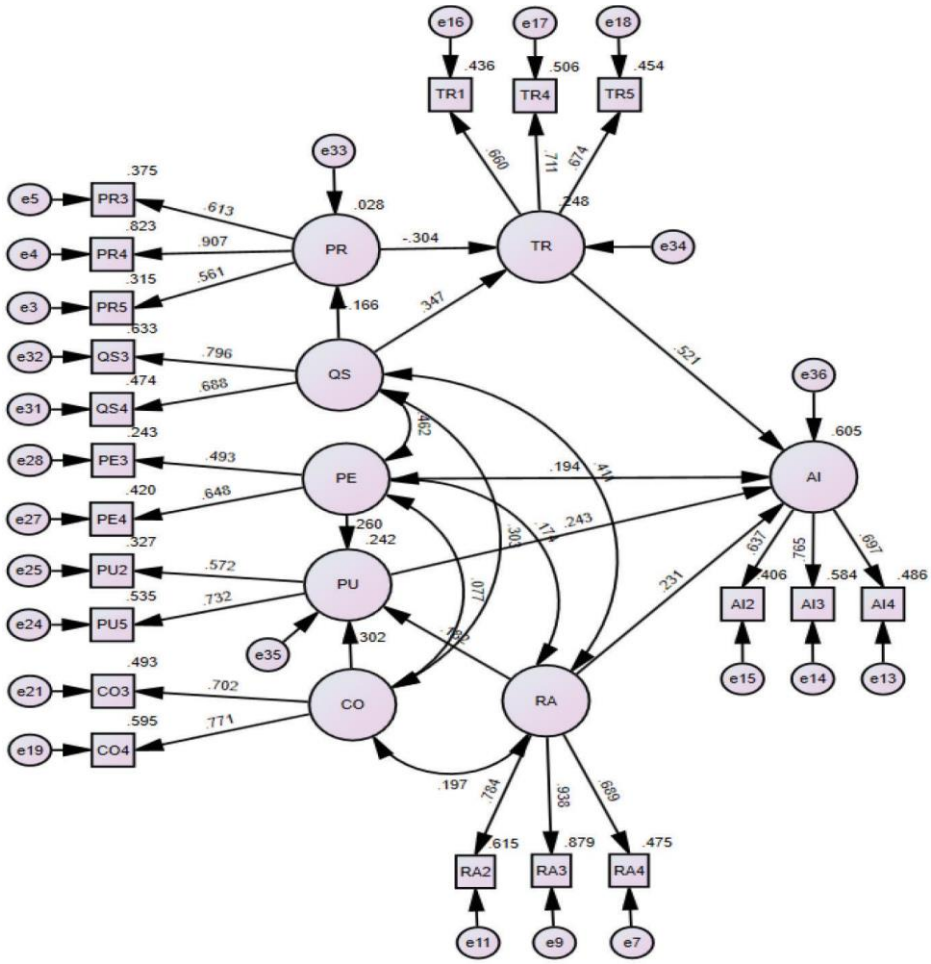

Figure 2: The Proposed Model in SEM with Standardized Estimates

Table 2: Hypothesis Testing Results

Research Hypotheses	Hypothesized Path	Estimate	S.E.	*t* value	*P* value	Interpretation
H1	AI ← PU	0.243	0.131	2.692	0.007	Accepted
H2	AI ← PE	0.194	0.143	2.023	0.043	Accepted
H3	PU ← PE	0.260	0.123	2.165	0.030	Accepted
H4	AI ← TR	0.521	0.121	5.792	***	Accepted
H5	TR ← QS	0.347	0.064	3.911	***	Accepted
H6	TR ← PR	–0.304	0.081	–3.716	***	Accepted
H7	PR ← QS	–0.166	0.059	–2.049	0.040	Accepted
H8	AI ← RA	0.231	0.079	3.324	***	Accepted
H9	PU ← RA	0.182	0.070	2.042	0.041	Accepted
H10	PU ← CO	0.302	0.072	2.726	0.006	Accepted

of TAM, where PU is the central premise of attitudes towards the use of new technology (Lee, 2017). This testing result is in line with the previous study by Hubert et al. (2019), Min et al. (2019), Singh and Sinha (2020), Lien et al. (2020). This result shows that customers are willing to use the P2P lending platform because meet the needs, time-saving, effort-saving, cost reduction, and overall usefulness.

AI was significantly impacted by PE (H2: β = 0.194, t = 2.023); this testing result shows that PE significantly impacts customers' intention to use P2P lending platforms in Indonesia. The result is in line with the previous study by Kumar et al. (2020), Hu et al. (2019), Lien et al. (2020).

PE was found to be significantly associated with PU (H3: β = 0.260, t = 2.165); this result indicates that PE positively affects PU towards customers in adopting P2P lending platforms. The result is in line with the previous study by Lee (2017), and Hubert (2019).

AI was significantly impacted by TR (H4: β = 0.521, t = 5.792); this is one of the actual results of this research. This is shown in the descriptive analysis showing that the highest mean of the reliable variable is 5.792. This implies that users have a high degree of TR in the P2P lending platform and feel that the service is worth trying. It can be concluded that users trust P2P lending platforms because some are registered with the Financial Services Authority (OJK). The result is in line with the previous study by Khlaisang et al. (2019), Ryu and Ko (2020), Goutam et al. (2018).

QS was found to be significantly associated with TR (H5: β = 0.347, t = 3.911); this result indicates that a P2P lending platform that provides good service will increase customers' trust in adopting. The result is in line with the previous study by Ryu and Ko (2020), Goutam and Gopalakrishna (2018).

PR was found to be significantly associated with TR (H6: β = –0.304, t = –3.716); this result showed PR proved to be negatively significant towards customer's trust towards using P2P lending platforms. The result aligns with the previous study by Goutam and Gopalakrishna (2018), Ghotbabadi et al. (2016).

The relationship between QS and PR (H7: β = –0.166, t = –2.049) indicates that the QS proved to be negatively significant towards customers' PR towards using P2P lending platforms. The result was consistent with the previous study by Ryu and Ko (2020), Chen et al. (2017).

AI was significantly impacted by RA (H8: β = 0.231, t = 3.324); users consider the RA compared to currently available services, such as multi-finance or banking. P2P lending platform can offer quite a few advantages over other forms of borrowing, such as more competitive interest rates, flexible terms, and a fast and convenient online application process. The result is in line with the previous study by Johnson et al. (2018), Mombeuil (2020).

RA was found to be significantly associated with PU (H9: β = 0.182, t = 2.042); this result indicates that a P2P lending platform that provides many advantages will increase customers' PU in adopting. The result is in line with the previous studies by Yuen (2020), Min et al. (2019), and Khlaisang et al. (2019).

The relationship between CO and PU (H10: β = 0.302, t = 2.726) indicates that the CO proved to be positively significant towards customers' PU towards using P2P lending platforms. The result aligns with the previous studies by Raza et al. (2017), Gumussoy et al. (2018), Hubert et al. (2019), Singh and Sinha (2020).

5. Conclusion

The empirical study presented in this work reveals that: first, the hypothesis test results of this model show that TR, RA, PU, and PE are playing important roles. QS had a substantial indirect beneficial positive influence on TR, and QS had a substantial indirect beneficial negative influence on PR in terms of adoption intention. Second, PR can influence consumers' opinions about AI in P2P lending platforms. The mechanism is that PR has an enormous negative influence on TR, whereas TR actively encourages consumers to engage in P2P lending platforms. This demonstrates that consumers' perceptions of P2P lending platforms play a significant impact in lowering the degree of TR in services. Platform development must include methods to minimize PR to users to strengthen TR in products and services, boosting users' willingness to utilize the platform. Third, indirectly RA and CO can influence consumer's opinions about AI in P2P lending platforms. The mechanism is that RA and CO have a positive influence on PU, whereas PU actively encourages consumers to engage in P2P lending platforms. This demonstrates that platform development must include more advantages than existing services and be consistent with an individual's current values, experiences, and requirements.

The study has several limitations that should be addressed in future research. First, data for this research were collected from only one country, Indonesia. Since the culture of the country was found to affect the relevance of the constructs such as perceived risk (Chopdar et al., 2018), quality of service (Malhotra et al., 2018), future research should test the scale invariance of this measurement before applying it to other countries. Second, the emerging financial technology innovations are generally related to government regulations such as standards and practice guarantees in this industry. The literature shows that customer protection is one of the main discussion themes in P2P lending platform research (Suryono et al., 2021). The factor regulation and the association's role are more factors for further research better to understand the adoption intention of P2P lending platforms.

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