FINTECH RISKS AND CONTINUANCE TO USE ON GENERATION Z

Mahendra Adhi Nugroho A, Budi Tiara Novitasari B

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ABSTRACT

Purpose: Most fintech users will be the generation Z; thus, understanding the generation Z is essential. This study is aimed to explore the relationship between financial risk, legal risk, security risk, and operational risk with risk in using fintech. This study also examines fintech risk influence on generation Z’s intention to continuance to use fintech.

Theoretical framework: Previous studies (Darmiasih & Setiawan, 2020; Leon & Diana, 2020; Putritama, 2019; Ryu, 2018) analyzed the relationship between risk and fintech use continuance by excluding the generation Z perspective from the study. This study fills the research gap by focusing on Generation Z.

Design/methodology/approach: This study adopts a quantitative approach. This study distributes online questionnaires to Generation Z in Indonesia. This study utilized the Partial Least Square approach to answer the research question using 199 responses earned from the country survey. The analysis is assisted by SmartPLS 3.2.8 software.

Findings: The analysis result showed a positive relationship between financial risk, legal risk, security risk, and operational risk with risk in using fintech. This study also found a negative relationship between fintech risk and Generation Z’s intention to continuance to use fintech among Generation Z.

Research, Practical & Social implications: This study gives a new insight into the fintech industry in anticipating future failure in the business.

Originality/value: This study finding provides a new perspective (Generation Z) on fintech use and risk investigation, which was rarely conducted in the previous studies most publications.

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RISCOS FINTECH E CONTINUAÇÃO PARA USO NA GERAÇÃO Z

RESUMO

Objetivo: A maioria dos usuários de fintech será a geração Z; assim, entender a geração Z é essencial. Este estudo tem como objetivo explorar a relação entre risco financeiro, risco legal, risco de segurança e risco operacional com risco no uso de fintech. Este estudo também examina a influência do risco de fintech na intenção da geração Z de continuar usando fintech.

Referencial teórico: Estudos anteriores (Darmiasih & Setiawan, 2020; Leon & Diana, 2020; Putritama, 2019; Ryu, 2018) analisaram a relação entre risco e continuidade do uso de fintech, excluindo a perspectiva da geração Z do estudo. Este estudo preenche a lacuna de pesquisa, concentrando-se na Geração Z.


A PhD in Accounting. Universitas Negeri Yogyakarta. Indonesia. E-mail: mahendra@uny.ac.id
Orcid: https://orcid.org/0000-0001-5947-0996

B Master in Accounting. Universitas Negeri Yogyakarta. Indonesia. E-mail: budi.tiara@uny.ac.id
Orcid: https://orcid.org/0000-0001-8823-6031

**Resultados:** O resultado da análise mostrou uma relação positiva entre risco financeiro, risco legal, risco de segurança e risco operacional com risco no uso de fintech. Este estudo também encontrou uma relação negativa entre o risco de fintech e a intenção da Geração Z de continuar usando fintech entre a Geração Z.

**Pesquisa, implicações práticas e sociais:** Este estudo fornece uma nova visão sobre o setor de fintech para antecipar falhas futuras nos negócios.

**Originalidade/valor:** O achado deste estudo fornece uma nova perspectiva (Geração Z) sobre o uso de fintech e investigação de risco, o que raramente foi realizado na maioria das publicações de estudos anteriores.

**Palavras-chave:** Risco Fintech, Continuar a Usar, Geração Z.

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**RIESGOS FINTECH Y CONTINUACIÓN DE USO EN LA GENERACIÓN Z**

**RESUMEN**

**Propósito:** La mayoría de los usuarios de fintech serán la generación Z; por lo tanto, comprender a la generación Z es fundamental. Este estudio tiene como objetivo explorar la relación entre el riesgo financiero, el riesgo legal, el riesgo de seguridad y el riesgo operativo con el riesgo en el uso de fintech. Este estudio también examina la influencia del riesgo de fintech en la intención de la generación Z de continuar usando fintech.

**Marco teórico:** Estudios previos (Darmiasih & Setiawan, 2020; Leon & Diana, 2020; Putritama, 2019; Ryu, 2018) analizaron la relación entre el riesgo y la continuidad del uso de fintech excluyendo la perspectiva de la generación Z del estudio. Este estudio llena el vacío de investigación centrándose en la Generación Z.

**Metodología:** Este estudio adopta un enfoque cuantitativo. Este estudio distribuye cuestionarios en línea a la Generación Z en Indonesia. Este estudio utilizó el enfoque de mínimos cuadrados parciales para responder la pregunta de investigación utilizando 199 respuestas obtenidas de la encuesta del país. El análisis es asistido por el software SmartPLS 3.2.8.

**Hallazgos:** El resultado del análisis mostró una relación positiva entre el riesgo financiero, el riesgo legal, el riesgo de seguridad y el riesgo operativo con el riesgo en el uso de fintech. Este estudio también encontró una relación negativa entre el riesgo de fintech y la intención de la Generación Z de continuar usando fintech entre la Generación Z.

**Implicaciones de la Investigación:** este estudio brinda una nueva visión de la industria fintech al anticipar futuras fallas en el negocio.

**Originalidad/valor:** el hallazgo de este estudio brinda una nueva perspectiva (Generación Z) sobre el uso de fintech y la investigación de riesgos, que rara vez se llevó a cabo en la mayoría de las publicaciones de estudios anteriores.

**Palabras clave:** Fintech Risk, Continue to Use, Generation Z.

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**INTRODUCTION**

Information technology has urged the development of a new business model combining financial service and information technology known as fintech. Generally, fintech is described as technology (generally related to the Internet) connected to business activity in the financial service industry (Gomber et al., 2017). Fintech is a multidisciplinary topic combining technology, management, and management innovation (Leong, 2018). Allied Market Research in 2017 predicts that payments via mobile services (fintech) could reach 3.4 billion US dollars by the end of 2022. The massive fintech development in Indonesia was evidenced by the Indonesian financial services authority’s record mentioning that initially, in 2017, there were 16 listed fintech companies, while on 30th October 2019, the number grew to 144 listed fintech companies (OJK, 2019). The use of fintech has improved due to its ability to increase quality
and efficiency (Li et al., 2017) and provide broader coverage of financial services (Skan et al., 2015). In addition, using fintech can reduce the company's overhead costs (Hwang et al., 2007). Fintech is very useful for consumers, companies (retailers), and fintech service providers as online payments with fintech offer convenience and save time in transactions (Thakur & Srivastava, 2014). In addition, fintech users can conveniently operate fintech to settle debts or collect receivables (Kerem et al., 2013). However, with all the benefits of fintech, fintech is also prone to risk, including user misappropriation, fraud, sabotage, virus, and fund embezzlement (Mathur et al., 2015). The risks are embedded in each fintech service provided by fintech companies.

Generation Z is born within the range of 1995 to 2010 (Mowery & Simcoe, 2002), grown-up side by side with the digital era development (Prensky, 2001), and is highly dependent on the technological device (gadgets) (Palley, 2012). In 2020, the International Labor Organization (ILO) reported that 21% of the world's working-age population belonged to Generation Z. In addition, it is projected that 24% of the Asian population will be Generation Z by 2025 (Kim et al., 2020). Specifically, Indonesia had 43.1 million generation Z, which are included in the productive age category (15 to 24 years old) in 2015 (Surbakti & Savitridina, 2015), becoming 75.49 million (27.94% of Indonesia's population) in 2020. Based on the number, it is predicted that Generation Z will use fintech more effectively than prior generations. Thus, it is essential to understand the risk factors in fintech encountered by Generation Z. It will be able to describe generation Z the risks exposed in using fintech services and fintech service sustainability.

Studies specifically explaining risk in using fintech from the generation Z perspective are limited. Liu et al. (2012) researched the use of mobile payment without considering the effect of a particular age group on the usage. Similarly, Liu et al. (2013) conducted a study in China on the perceived risk of using online group buying applications while leaving the analysis on generation Z remained untouched. Moreover, Ryu (2018) specifically raised the fintech risk issue in Korea, while Putritama (2019) and Leon and Diana (2020) conducted a study on the fintech risk issue in Indonesia without including the generation Z perspective in the study.

Putritama (2019); Ryu (2018), and Leon and Diana (2020) explained that fintech usage continuance is affected by the fintech risk itself. Previous studies have analyzed the influence of risk on information technology use continuance. For instance, Ryu (2018) found the effect of risk on fintech use future continuance; in the Indonesian context, Putritama (2019) and Darmiasih and Setiawan (2020) conducted studies on fintech mobile payment and found the
relationship between risk and fintech mobile payment use continuance. Previous studies analyzed the relationship between risk and fintech use continuance by excluding the *generation Z* perspective from the study. This study fills the research gap by focusing on *Generation Z*. This study investigates the relationship between fintech risk and intention to continuance to use of fintech in *Generation Z* perspective.

**THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT**

**Fintech**

Generally, fintech is known as financial service combined with IT service (IT industry), gaining much attention recently, becoming a trend, and being massively adopted. Fintech as an innovation in financial service in which technology is a key. Literature provides various definitions of fintech. In their research, Sweeney (2015) and Lee and Teo (2015) described fintech as a financial product or service created from innovative and disruptive technology development. In another study conducted by Freedman (2006), fintech is related to a system that models, assesses, and processes financial products, such as obligations, stock, contracts, and digital money. Arner et al. (2015) defined fintech as a technology-based financial solution. On the other hand, Lee and Kim (2015) explained that fintech refers to a business using technology, including hardware and software, to provide financial services.

The use of IT by the financial services industry has taken place in recent decades; however, fintech has an entirely different opportunity, risk, and legal aspect than other financial services. Unlike other financial services, fintech has a distinct category related to IT. In fintech, IT has an essential role in developing and strengthening fintech services. The role of IT in fintech is not only as a facilitator or catalyst in creating an effective financial service but also as the real innovation and disruptor of the existing financial services. As a result, policy makers’ worries about fintech usage are urged by financial technology users instead of the technology itself (Arner et al., 2015). Fintech can also be defined as an innovative and disruptive financial service in a non-financial company in which IT handles an essential role. The use of mobile payment or remittance is an example of fintech use which is commonly practiced nowadays.

Additionally, fintech includes various services such as financial planning, peer-to-peer lending (P2P lending), crowdfunding, and retail investment (Barberis, 2014). Fintech experienced significant development in Indonesia. Indonesian financial services authority reported that Fintech’s vast development is shown not only by the popularity of the provided financial services but also by the number of users *Generation Z*. 

In defining *Generation Z*, this study adopts the generation categorization based on birth year proposed by Oblinger and Oblinger (2005). Oblinger and Oblinger (2005) divided the generation based on the birth year into Y or millennial generation, X or post-millennial generation, and Y generation, known as baby boomers. Y or millennial generation includes people born from 1981 to 1995. *Generation Z* or the post-millennial generation are born from 1995 to 2010. *Generation X* was born between 1960 – 1980, and the Y generation was born between 1980 – 1995. Baby boomers were born from 1945 to 1960. In addition to the five generations, the Alpha generation is born after Generation Z (2010 – 2015). *Generation Z* develops interesting characteristics that differ from the previous generation (millennial generation) due to their early exposure to massive digital technology to *Generation Z* since they were born. Different from *Generation Z* has less exposure to digital technology development. Prensky (2001) declared *Generation Z* as digital natives since they grew up with digital technology. Monaco and Martin (2007) also explained the difference in learning styles from generation to generation. While *Generation Z* was born when sophisticated technology was ready to use (Naughton, 2016), the previous generation (millennials) has the opportunity to be the primary user of technology, allowing the development of digital learning amidst the development of advanced technology. The situation is entirely different from the X generation, which used projectors and computer as learning tools, and the baby boomers generation, which used even more straightforward learning tools. The illustration shows that each generation has a different path and learning tool. Eventually, learning style and tools variations affect many aspects, including characteristics and behavior.

**Characteristics and Behavior of Generation Z**

Growing up side by side with advanced digital technology, the characteristics and behavior of Generation Z are different from the previous generations. Generation Z has a different interaction, playing, and learning method since they were born in the digital era (Grail Research, 2011) and economic transactions from the previous generation. Regarding entertainment media, Generation Z prefers interactive media to conduct two things simultaneously than television. Concerning technology, Generation Z, compared to the previous ones, tend to use technology in various aspects of their life intensively. In a particular situation, 79% of Generation Z will feel pressured when restricted access to technology and social media is implemented (Grail Research, 2011).
Moreover, Generation Z prefers mobile banking and online shopping in economic transactions. It differs from the X and Y generation, who considered mobile banking a complement to offline banking activities. Generation Z prefers mobile banking over visiting the bank to access financial services (Vision Critical, 2016). Generation Z prefers to use the online platform to shop since they have good access to desktops, laptops, smartphones, and other communication tools. Accenture (2017) reported that 58% of Generation Z are willing to spend more on express delivery services. Additionally, 66.7% of Generation Z agreed that online shopping is more effective and efficient.

Risk and Information Technology

Risk is one of the factors determining continuance intention in using a particular product or service. Users often face risk or uncertainty when using a specific service or product. Users utilize incomplete or imperfect information as the basis for decision-making (Kim et al., 2008). This study aimed to develop an understanding based on reasoned action / TRA theory. TRA explained that behavior is the primary indicator of an individual’s intention (Ajzen & Fishbein, 1977; Benlian & Hess, 2011). Based on the TRA explanation, continuous intention in using fintech depends on the user’s perception of fintech use affected by belief on behavior. Jurison (1995) described belief in behavior as benefit and risk in using fintech which later will determine future attitude and intention. Thus, it can be concluded that a positive belief on fintech use will improve the perceived benefit and vice versa.

Kim et al. (2008) proposed a decision-making model in e-commerce buying intention while exploring the risk. Lee (2009) conducted a multidimensional risk analysis by proposing a theoretical model explaining users’ intention to use online banking. Benlian and Hess (2011) analyzed the risk in adopting software as a service (SaaS), in which the risk includes risk perceived by IT executives of either adopting or non-adopting companies. Benlian and Hess (2011) proposed five types of risk (performance, economy, strategy, security, and managerial risk) in adopting SaaS. Lee et al. (2013) analyzed the benefit and risk factors affecting the intention to share information on social media services. The study proposed five types of risk (security risk, stigma risk, relational risk, and role risk) affecting the decision to share information. Considering the perceived benefit and trust, Farivar and Yuan (2014) proposed a theoretical model to analyze the adoption behavior of social media users. Farivar and Yuan (2014) adopted two negative factors (social risk and trading risk) as risk variables. Farivar and Yuan (2014) also proposed four risk components: financial loss, legal risk, operational risk, and
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Fintech Risk Factor

Innovation develops by offering benefits and risks to the users (Schierz et al., 2010). Fintech, as one of the innovations discussed in various studies, is an unanticipated innovation that has gained high popularity. Fintech users are exposed to quite extended risk. One of those is failure risk or imperfect transaction. This study utilizes the risk framework Cunningham (1967) developed to explain individual risk factors affecting fintech. Cunningham (1967) divided risk into six dimensions: performance, financial consideration, opportunity/time, security, social aspect, and psychological. This study attempts to transfer the risk framework that was developed by Cunningham (1967) into the fintech context by adapting the construct proposed by Ryu (2018), which categorized risk factors into financial, legal, security, and operational risks.

Previous studies on information systems for financial activities found that financial risk is the most consistent factor in predicting online and mobile service users' behavior (Abramova & Böhme, 2016; Benlian & Hess, 2011). Forsythe et al. (2006) explained that financial risk refers to the likelihood of experiencing financial loss in conducting financial transactions using fintech. Financial loss in fintech is caused by system function failure, financial fraud, moral-related problems, and transaction fees, which add to the magnitude of initial adoption cost (Zavolokina et al., 2017). Those issues eventually cause negative effects on the intention to continue using fintech services.

The second risk is legal risk referring to unclear business status and lack of regulation related to fintech operations. Legal risk is also associated with the government warranty on transaction security conducted through fintech. The lack of regulation in preventing financial loss and other security issues related to fintech has generated users’ anxiety and distrust.

Fintech is often related to the possibility of experiencing a significant financial loss (Schierz et al., 2010). The financial risk in electronic services is related to the personal data breach, which remains the primary concern of electronic service users (Lwin et al., 2007). Security risk is potential loss due to fraud or security system breach in the fintech transaction. Fraud or security breaches can cause financial loss for online and mobile service users (Lee,
A potential loss could happen due to fraud, breaking, or other financial risks increasing fintech risk.

The third risk is operational risk. Operational risk is potential loss caused by failure or imperfect business processes, employees, or service systems (Barakat & Hussainey, 2013). Operational risk is one of the factors hindering service use. The likelihood of the company’s bankruptcy and operation failure in providing service to the users can later cause operational failure on the users’ side. The users might cease using the service when the operational risk is too high. High operational risk is due to a lack of operational ability, a provider’s inability to respond to possible problems, system failure, or an imperfect internal process. Moreover, operational risk can cause users’ dissatisfaction and disbelief which later can decrease the use of fintech.

Fintech users decide to use the service by considering the reputation of the service providers to avoid the possible risk (such as financial loss, safety issues, and unavailable precise regulation). The four risks mentioned above tend to affect fintech risk as a whole significantly. Moreover, the four risks can negatively affect the intention to use fintech services. Thus, this study formulated the following hypothesis:

\[ H_1: \text{financial risk is positively related to fintech risk.} \]
\[ H_2: \text{legal risk is positively related to fintech risk.} \]
\[ H_3: \text{security risk is positively related to fintech risk.} \]
\[ H_4: \text{operational risk is positively related to fintech risk.} \]

**Fintech Risk and Intention to Continuance to Use Fintech**

Ajzen and Fishbein (1977) and Benlian and Hess (2011) mentioned that the Theory of Reasoned Action (TRA) is a tested theory in explaining how a certain attitude on behavior can determine an individual intention. Based on TRA, the intention to use fintech is determined by service users’ assessment of fintech usage attitude. When a user chooses a particular service, he has agreed to bear the risk and benefit of his decision. Thus, users will compare the available services and choose the best among them (Kim et al., 2008).

Fintech risk is one of the obstacles in determining fintech usage continuance. In this study, fintech risk refers to users’ perception of uncertainty and the negative consequences of fintech usage. Mitchell (1999) and Lim (2003) explained that fintech risk is becoming users’ main concern and researchers’ primary consideration in innovating the service. In this study, fintech risk is defined as users’ perception of uncertainty and the possibility of negative...
consequences for using fintech services. Abramova and Böhme (2016) found that users are experiencing layered risks that significantly and negatively influence bitcoin adoption. Other literature explains that risk negatively influences the intention to use information technology-based services (Abramova & Böhme, 2016; Benlian & Hess, 2011; Farivar & Yuan, 2014).

Based on tested theory and empirical evidence from the literature review, this study assumes that risk experienced by users has an essential role in establishing the intention to continue using fintech. Additionally, risk has a negative impact on the intention to continuance. Thus, this study formulated the following hypothesis:

H5: Fintech risk has a negative relationship with intention to continuance to use fintech.

**RESEARCH METHODS**

**Population and Sample**

The population of this research is all generation Z (born from 1995 to 2010), who are legally capable (at least 17 years old) and reside in Indonesia. Legally capable is included in the characteristics of this study population to ensure that the respondents are fully conscience in conducting financial transactions through fintech services and fully aware of the risk of their actions. Moreover, this study's sample is selected using the simple random sampling approach.

The minimum size of the sample is calculated by the amount of complex latent variable (variable with the largest amount of questions) times 10 (Gefen et al., 2000) and also calculated by using a priori power analysis (Faul et al., 2007, 2009). A priori power analysis for business research can be conducted using a 0.80 value with 0.5 alpha (Hair et al., 1995) and the most complex latent variable. Power analysis is aimed to avoid type 1 and 2 statistical errors (Erdfelder et al., 1996). The effect size on most applications is supposed to be at least “small” (Cohen, 1988) to earn a practical significance. Effect size measures the degree of the researched phenomenon's existence in the research population (Hair et al., 1995). On the other hand, the less the researcher believes in the sample’s ability to capture the phenomena in the population, the smaller the effect size used in the research. Cohen (1988) categorized effect size into small (0.2), medium (0.5), and large (0.8). Power analysis is conducted to increase the strength of the significance test result. From both of the approaches, the minimum sample earned for this study is 40 to 65.

The data used in this study is collected by using an online questionnaire. This study chooses an online survey because it is easy to complete, covers questions on various subjects, and provides information and a high interaction (Cobanoglu & Cobanoglu, 2003; Ilieva et al.,
2018). Vu and Hoffman (2011) argued that online surveys had become an eminent quantitative research method globally due to their relatively low cost and high speed. The questionnaire is spread to respondents across 34 provinces in Indonesia. The study has successfully earned 199 valid respondents. Table 1 provides the short description on the respondents’ profile.

<table>
<thead>
<tr>
<th>Table 1 Respondent’s profile</th>
<th>Sum</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>62</td>
<td>31%</td>
</tr>
<tr>
<td>Female</td>
<td>137</td>
<td>69%</td>
</tr>
<tr>
<td>Fintech use frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Several times a day</td>
<td>11</td>
<td>6%</td>
</tr>
<tr>
<td>Once a day</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td>Several times a week</td>
<td>38</td>
<td>19%</td>
</tr>
<tr>
<td>Once a week</td>
<td>8</td>
<td>4%</td>
</tr>
<tr>
<td>Several times in a month</td>
<td>78</td>
<td>39%</td>
</tr>
<tr>
<td>Once a month</td>
<td>14</td>
<td>7%</td>
</tr>
<tr>
<td>Several times a year</td>
<td>37</td>
<td>19%</td>
</tr>
<tr>
<td>Once a year</td>
<td>11</td>
<td>6%</td>
</tr>
<tr>
<td>Average age</td>
<td>20.7</td>
<td>year</td>
</tr>
<tr>
<td>Average time spent using SmartPhone</td>
<td>7.9</td>
<td>year</td>
</tr>
<tr>
<td>Average time in using Fintech</td>
<td>2.9</td>
<td>year</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors

**Variable Definition and Measurement**

This study uses six main variables: financial risk, legal risk, security risk, operational risk, fintech risk, and intention to continuance to use fintech. Financial risk is defined as a potential financial loss in conducting transactions. Legal risk is defined as unclear legal status and lack of regulation no fintech. Security risk is defined as potential loss due to fraud and hacking in conducting transactions using fintech. Operational risk is defined as potential loss caused by internal processes, employees, and system failure. Fintech risk is defined as uncertainty and the possibility of negative consequences in using fintech services. Continuance intention is defined as fintech users’ intention to use fintech in the future.

All variables are measured using a 1-7 Likert scale. The use of 7 points Likert scale will not cause a significant difference in reliability compared to a study using a 6, 5, or 3 points Likert scale (Kinnear & Taylor, 1987). Nevertheless, 7 points Likert scale provide an extensive range for the questionnaire to avoid a skewed response and guarantee a rigorous analysis (Hussey & Hussey, 1997). Question items adopted from the previous studies measure all variables in this study. Intention to continuance adapts four items from Cheng et al. (2006), and Lee (2009), Financial Risk (FR) utilizes three items, Security Risk (SR) utilizes four items from Featherman and Pavlou (2003) and Lee (2009), legal risk (LR) adopt four items from Barakat
and Hussainey (2013) and Abramova and Böhme (2016), Operational Risk (OR) modify three items from Barakat and Hussainey (2013).

**Data Analysis Technique**

Partial least square (PLS) is an analysis method adopting the covariance-based approach, thus allowing researchers to minimize the sample size (Chin & Newsted, 1999). PLS is suitable for predicting and establishing a relatively small sample (at least ten times the most complex construct item) (Gefen et al., 2000). The other advantage of using PLS explained by Ho et al. (2003) includes PLS’s ability to estimate the model size on the measurement’s validity and reliability. Secondly, using the construct latent’s indicator, PLS can earn parameters from the structural model to test the strength of the hypothesized relationship. Temme et al. (2006) described that PLS could provide the actual value better than Ordinary Least Squares (OLS). The advantage of a significant PLS is its minimum requirement for measurement scale, sample size, and residual distribution (Chin, 1998b). Data analyzed using PLS does not have to be normally distributed, PLS does not assume a particular distribution, and PLS data can use either nominal, categorical, ordinal, interval, or ratio (Kustono, 2008). PLS does not require a robust theoretical basis; thus, it is suitable for studies testing and / or developing a theory (Hartono & Abdillah, 2009). Moreover, PLS allowed the researcher to be more dependent on the theory in analyzing the data when it is well established (Chin, 1998a, 1998b).

This study uses Smart PLS 3.2.8 software developed by Ringle et al. (2015) to conduct all analyses. Estimates of the overall model fit are not required when analyzing using the PLS approach because PLS is a non-distributional approach (Chin & Newsted, 1999; Hulland, 1999). PLS is used to estimate the measurement and structural models, performed separately and simultaneously (Hulland, 1999). Measurement model estimation is used to test instruments’ validity and reliability, while structural model estimation tests the hypotheses. This study adopted the repeat indicator approach to measuring the fintech risk construct. The repeat indicator approach is adopted since it is easy to implement (Hair et al., 2017) and universally used (Wilson & Henseler, 2007).

**RESULTS**

**Measurement Model**

Instrument validity is tested by using convergent validity and discriminant validity. A construct fulfills convergent validity when its average variance value (Average Variance
Extracted – AVE) is greater than 0.5, and its loading factor is at least 0.60, or ideally 0.70 or greater (Chin, 1998a). All constructs in this study have loading values greater than 0.7 and AVE greater than 0.5; thus, it can be concluded that convergent validity is fulfilled (see Table 2). Henseler et al. (2014) and Hair et al. (2017) introduced a new method to test discriminant validity by conducting Heterotrait-Monotrait (HTMT) test. If the value of the HTMT ratio is smaller than 0.90, the instrument fulfilled discriminant validity (Hair et al., 2017; Henseler et al., 2014). The test result showed that the value of the HTMT ratio is less than 0.9 (see table 3). Internal consistency reliability can be observed from the composite reliability value. When the composite reliability value is greater than 0.7, it can be concluded that the instrument is reliable (Hair et al., 2014, 2017). Instrument reliability is tested by evaluating Cronbach’s alpha and rho alpha. An instrument is reliable if its Cronbach’s alpha is greater than 0.7 and its rho alpha is also greater than 0.7 (Dijkstra & Henseler, 2015). The estimation showed that composite reliability value (ρc), Cronbach’s alpha (α), and rho alpha (ρα) are greater than 0.7 (see Table 2)

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Item</th>
<th>Loading</th>
<th>AVE</th>
<th>α</th>
<th>ρα</th>
<th>ρc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Risk</td>
<td>FR1</td>
<td>0.813</td>
<td>0.699</td>
<td>0.785</td>
<td>0.786</td>
<td>0.875</td>
</tr>
<tr>
<td></td>
<td>FR2</td>
<td>0.836</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FR3</td>
<td>0.859</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intention to Continuance</td>
<td>IC1</td>
<td>0.802</td>
<td>0.625</td>
<td>0.826</td>
<td>0.888</td>
<td>0.869</td>
</tr>
<tr>
<td></td>
<td>IC2</td>
<td>0.781</td>
<td></td>
<td></td>
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<td>0.673</td>
<td>0.835</td>
<td>0.840</td>
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<td></td>
<td>LR2</td>
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<tr>
<td></td>
<td>LR3</td>
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<tr>
<td></td>
<td>LR4</td>
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<td>0.867</td>
<td>0.917</td>
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<td>OR2</td>
<td>0.893</td>
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<tr>
<td></td>
<td>OR3</td>
<td>0.891</td>
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<td>Security Risk</td>
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<td>0.761</td>
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<td>SR2</td>
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</table>

Source: Prepared by the authors

<table>
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<th>Construct</th>
<th>FR</th>
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<td>Security Risk</td>
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</table>

Source: Prepared by the authors
Structural Model

The relationship between variables is illustrated in the hypotheses testing model conducted through PLS approach analysis. The decision is made by considering the significant value on the path of the tested variable. The relationship direction between variables is given by the positive or negative value of the beta estimate results in the tested model. Hypotheses testing using the PLS approach is conducted through the bootstrapping procedure, as Henseler et al. (2014) suggested. This study used 5000 repetitions in bootstrapping procedures to earn a stable and consistent test result. Figure 1 depicts the model and analysis result.

![Figure 1 Path model and results](source: Prepared by the authors)

The result of structural model estimation showed a positive and significant relationship between financial risks with ($\beta = 0.228$, $p < 0.01$), and relationship between legal risk ($\beta = 0.353$, $p < 0.01$), security risk ($\beta = 0.294$, $p < 0.01$), and operational risk ($\beta = 0.296$, $p < 0.01$) with fintech risk. Thus, it can be concluded that H1, H2, H3, and H4 are supported. Moreover, the test result showed a negative and significant relationship between fintech risk and continuance intention ($\beta = -0.166$, $p < 0.05$). Thus, it can be concluded that H5 is confirmed. In short, Table 4 depicts the test result.
Table 4 Path estimation results

<table>
<thead>
<tr>
<th>Path</th>
<th>β</th>
<th>Mean</th>
<th>St. Dev</th>
<th>t-stat</th>
<th>P Val</th>
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<td>0.228</td>
<td>0.228</td>
<td>0.016</td>
<td>14.329</td>
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<td>0.354</td>
<td>0.015</td>
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<td>0.294</td>
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<td>23.746</td>
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<td>Security Risk ➔ Fintech Risk</td>
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<td>0.296</td>
<td>0.015</td>
<td>19.861</td>
<td>0.000</td>
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<tr>
<td>Fintech Risk ➔ Intention to Continue</td>
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<td>-0.180</td>
<td>0.081</td>
<td>2.043</td>
<td>0.041</td>
</tr>
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</table>

Source: Prepared by the authors

DISCUSSION

This study aimed to 1) explore the relationship between financial risk, legal risk, operational risk, and security risk with fintech risk in generation Z, and 2) investigate the relationship between fintech risks with intention to continuance to use fintech on generation Z. The test result showed a positive and significant relationship between financial, legal, operational, and security risk with fintech risks (H1, H2, H3, and H4 are supported). Moreover, this study found a negative and significant relationship between fintech risk and intention to continuance (H5 is supported). The findings of this study supported previous studies conducted by Ryu (2018) and Putritama (2019), exploring the influence of risk on fintech continuance intention.

Generation Z in Indonesia has a different strategy from generation X and Y in responding to possible risks (Sitinjak, 2019). The negative relationship between fintech risk and intention to continuance to use fintech in this study showed that generation Z in Indonesia considers risk in conducting technology-assisted economic transactions. Nevertheless, the Indonesian financial service authority (OJK) released data showing that fintech use in Indonesia keeps increasing (OJK, 2019). The increase might be caused by the Indonesian government’s regulation requiring fintech companies and applications to be listed and monitored by the government. Additionally, the Indonesian government also has an institution to guarantee the safety of transactions conducted through fintech.

Theoretical Implication

This study provides several theoretical implications. Firstly, this study empirically and comprehensively proved the indirect influence of all risk aspects on intention to continue using fintech of generation Z. This study considers generation factor (generation Z), which has not been covered by previous studies in analyzing fintech risk (Putritama, 2019; Ryu, 2018). Therefore, this study has theoretically contributed a new perspective in analyzing fintech risk.

Secondly, this study has better understood the relationship between risk and intention to continue using fintech. Based on the analysis result, it can be concluded that fintech risk is
negatively related to the intention to continue using fintech in generation Z. Each generation will have a different preference in taking a risky decision (Sitinjak, 2019). Additionally, a new technology-assisted service diffusion is affected by individual characteristics (Teo et al., 2007). Each generation has different characteristics (Mohr & Mohr, 2017). Therefore, this study has contributed by providing further evidence on different generations’ preferences in responding to risk.

**Practical Implication**

The finding and discussion of this study have at least two practical implications. Firstly, for the government (as the regulator), understanding of fintech risk perceived by generation Z can be used as a reference in determining the necessary policy in the fintech industry. Understanding the risk perceived by generation Z allows the government to understand the future risk in the fintech industry. It will enable the government to design a preventive regulation or policy. Moreover, it will also open the possibility of a more suitable lending strategy to take into action.

Secondly, for practitioners in the fintech industry, understanding the fintech risk perceived by the users can improve the service and security of their fintech products. Besides, understanding generation Z is also an effort to understand their future customer. It will help them formulate the right strategy to ensure their business sustainability. Nevertheless, the fintech practitioners will also be able to use this study result to understand their fintech product weaknesses and formulate a strategy to maintain their business.

**Limitations and Future Research**

Besides the contributions mentioned above, this study has several limitations and offers opportunities for future studies. First, this study focuses on fintech risk concerning the intention to continue using fintech. Future studies can include other factors affecting the intention to continue using technology-assisted services, such as technology readiness, government support (Nugroho, 2015; Nugroho & Fajar, 2017), usefulness, ease of use (Nugroho et al., 2018), website (application) quality (Nugroho et al., 2019) or strategy (Nugroho et al., 2020). Second, the respondents of this study are limited to the fintech mobile payment application users. Future studies can include other fintech application users such as mobile remittance, P2P lending, and crowdfunding. Third, this study only includes respondents from one country (Indonesia) with
a similar national culture. Future studies can consist of several countries' citizens to improve the generalization of the study.

CONCLUSION

The primary purpose of this study is to examine the relationship between fintech risk and the intention to continue using fintech. The analysis results show that all sub-dimensions of fintech risk (financial, operational, legal, security) play a significantly positive role for overall fintech risk. In addition, Generation z sees fintech risks as an inhibiting factor for the future use of fintech services. Theoretically, this study can provide new insights into fintech research. In practice, this study offers a reference to the fintech industry to provide services in the future. However, this study still uses one fintech service (mobile payment) type to analyze. Further studies can use different types of fintech (mobile remittances, P2P lending, and crowdfunding) to broaden the generalization of research findings.

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