Emerging Markets Review 64 (2025) 101229

Contents lists available at ScienceDirect

Emerging Markets Review

journal homepage: www.elsevier.com/locate/emr

Perceived risks of financial misconduct and fintech in crowdfunding of Vietnamese individual investors

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ARTICLE INFO

JEL classification:
D81
G02
G32

Keywords:
Crowdfunding
Financial misconduct
Fintech
Perceived risk

ABSTRACT

Crowdfunding is a method of funding a project or venture by collecting small amounts of money from a large number of people – typically via the Internet – which presents both opportunities for financial inclusion and risks to financial consumers. This study aimed to investigate the influence of perceived risks of financial misconduct and fintech on the intentions of individual investors to participate in crowdfunding. The authors employed a quantitative method to gather approximately 900 survey responses, which were subsequently collated for further analysis. The findings indicate that the perceived risk of financial misconduct is a second-order factor that is reflected by four first-order factors: credibility risk, market risk, asymmetric information risk, and financial risk. Similarly, the perceived risk of fintech is a second-order factor that is reflected by three first-order factors: security risk, time-consuming risk, and expense risk. The study reveals that the perceived risk of financial misconduct negatively affects the intention to participate in crowdfunding, while the perceived risk of fintech positively influences the intention to participate. Additionally, the perceived risk of fintech also positively impacts the perceived risk of financial misconduct. Based on these research results, this study proposes policy implications for project owners, investors and regulatory agencies to enhance the quality of crowdfunding platforms. These recommendations aim to protect users from threats and risks associated with using these platforms, thereby improving the overall effectiveness and safety of the crowdfunding environment.

1. Introduction

The structure of Vietnam's economy is divided into three main sectors: Agriculture, Industry, and Services. To align with a modern and sustainable economic development strategy, the country is shifting its economic structure – gradually reducing its dependence on agriculture, while strongly promoting the industrial and service sectors. With the advancement of Industry 4.0 and the widespread adoption of digital transformation, digital economy trends are increasingly taking the lead – creating numerous development opportunities for businesses. The emergence of crowdfunding platforms has led to significant interest in the crowdfunding phenomenon, including in the Vietnamese context. The rise of crowdfunding activities is driven by advancements in technology and the Internet,

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https://doi.org/10.1016/j.ememar.2024.101229
Received 9 October 2023; Received in revised form 28 August 2024; Accepted 25 November 2024
Available online 26 November 2024

enabling global connections through online platforms. Additionally, shifts in consumer and investment behavior – where consumers increasingly want to be involved in the product development process – have played a role. Crowdfunding offers a financial solution for startup projects, allowing them to test the market and secure initial capital. Factors such as increased transparency, community support, changes in legislation, and the impact of the COVID-19 pandemic have also contributed to the growth of crowdfunding.

Discussing the benefits of crowdfunding as indicated by research conducted by Agrawal et al. (2011), online crowdfunding platforms possess the capability to surmount geographical constraints present in offline fundraising methods – thereby diminishing the significance of location in capital acquisition. Furthermore, these technological platforms facilitate seamless connections between investors and individuals seeking capital. Notably, crowdfunding emerges as the preferred financing option when the capital requirements are relatively modest (Schwienbacher and Larralde, 2010). Entrepreneurs and small business proprietors – who often harbor innovative concepts and exhibit operational flexibility – tend to attract individual investors eager to contribute their capital.

However, investing in crowdfunding projects does not guarantee the safety of invested capital or the realization of profits (Wang et al., 2021). Early-stage projects carry a heightened risk of failure, resulting in financial losses for investors. This risk is particularly pronounced in the context of new startups, as their failure rates tend to surpass those of ventures with established growth trajectories (Abaidoo and Agyapong, 2022). Despite the implementation of project evaluation and screening measures, the assessment of a project's financial viability and potential for success remains a formidable challenge (Vismara, 2016). Even projects with considerable potential may encounter unforeseen hurdles and complications during the execution phase.

From a legal perspective, crowdfunding can be effective and meet the capital needs of businesses; however, there are still many limitations to the widespread development of this fundraising method – especially when it involves equity crowdfunding, because national regulators are cautious in laws about this (Bruton et al., 2015; Mollick and Kuppuswamy, 2014). In some developed countries, crowdfunding has been recognized as a legitimate form of financing and regulations have evolved to guide its use (for example, the JOBS Act in the United States effective from May 2016, stipulates that the general public can invest in early-stage ventures). Meanwhile, in Vietnam and Singapore, there are no clear regulations – particularly concerning equity-based crowdfunding. This results in entrepreneurs having to comply with strict requirements and limitations when raising funds. Specifically, everything must be inferred from existing e-commerce and investment laws. While reward-based crowdfunding is widely accepted, in some countries equity-based crowdfunding projects may not truly be open to the public due to uncertainty about their legality. By 2016, the National Assembly of Vietnam in its 2016 draft law on supporting small and medium enterprises (SMEs) had recognized crowdfunding as a legitimate method to help SMEs access capital. The law defines crowdfunding as the mobilization of funds from many individuals through online services and legalizes the establishment of organizations providing such services. At the same time, the law sets minimum information disclosure requirements for projects and limits the amount of investment for each investor – to ensure transparency and safety in fundraising. Although the draft law only briefly mentions crowdfunding, it demonstrates the government's awareness of this funding model and their efforts to modernize legislation to support the growth of SMEs.

Regarding the scale of crowdfunding platforms, crowdfunding still constitutes a relatively modest portion of the broader startup capital mobilization landscape – primarily due to its novelty. In 2016, the presence of crowdfunding projects in Vietnam numbered a mere 17. Even after a span of three years, by 2019 the count had only marginally increased to 26 funded projects. Furthermore, the growth of crowdfunding platforms did not keep pace with the expansion of project volume. For instance, IG9 – the inaugural crowdfunding website launched in 2013 – successfully hosted more than 40 projects, each securing capital ranging from 7 to 15 million VND. However, by 2014 this platform was discontinued. Subsequently, other websites like FirstStep, Comicola, Fundstart, Charity Map and Betado emerged; nevertheless, by 2019 only three websites – namely Comicola, Betado and Fundstart – remained operational.

Currently, there exists a dearth of research pertaining to the performance of the crowdfunding market – particularly concerning the performance of crowdfunding entities and the returns realized by crowdfunding investors (Signori and Vismara, 2018). Additionally, scholars have exhibited less inclination toward investigating the realm of crowdfunding to elucidate the decision-making criteria of non-professional individual investors when confronted with diverse investment propositions. Certain studies by Ahlers et al. (2015) and Vismara (2016) predominantly drew upon established concepts from the domains of venture capital and private equity. Additionally, previous foreign studies by Hizgilov and Silber (2020) and Kass-Hanna et al. (2022) illustrated countries with different socioeconomic backgrounds compared to the case of Vietnam regarding income levels, financial functions and educational levels. Therefore, the general solutions proposed by the abovementioned studies for developing fintech and reducing concerns about financial misconduct in Vietnam may not be effectively applicable to this country. This raises concerns about the myriad uncharted risk factors that investors must prudently assess.

This study primarily focuses on quantifying the impact of factors influencing the risk perception associated with financial technology and financial misconduct among individual investors. The remainder of the study is organized as follows: **Section 2** provides the literature review and hypothesis development. **Section 3** describes the methods and models. **Section 4** discusses the results and policy implications to offer recommendations and solutions aimed at enriching the understanding of crowdfunding and furnishing guidance to investors for risk mitigation.

2. Literature review and hypothesis development

2.1. Literature review

Crowdfunding is a financial mechanism that serves two principal beneficiary groups: (1) Aspiring entrepreneurs who find themselves in the nascent stages of conceiving novel ideas or products; and (2) Small business proprietors endeavoring to sustain their operational activities or embarking upon expansion initiatives (Stemler, 2013). Both of these aforementioned target demographics

share a common deficiency in terms of established credit histories and proven track records. Consequently, traditional avenues for securing funding – such as conventional bank loans – pose considerable challenges for entrepreneurs seeking investment for their innovative business concepts (Fink, 2012). In light of these impediments, crowdfunding platforms emerge as an instrumental conduit for simplifying and decentralizing the fundraising process for small enterprises and entrepreneurs. By means of direct online engagement with potential investors, entrepreneurs are afforded the opportunity to effectively articulate their proposals and procure financial support from a wide spectrum of individuals (Schwienbacher and Larralde, 2010). Simultaneously, investors stand to reap financial rewards in various forms – including equity stakes, interest payments, revenue shares, and loyalty benefits – in the form of profits (Belleflamme et al., 2015).

The study was developed based on the theory of perceived risk (TPR) by Bauer (1960) and the unified theory of acceptance and use of technology (UTAUT) by Venkatesh et al. (2003). Bauer (1960) posited that investors – particularly within the crowdfunding markets – are not solely motivated by the potential benefits they might accrue; they also harbor concerns about incidents that could potentially harm their investments, thereby influencing their decision-making process. Awareness of such potential risks significantly impacts investors' intentions to utilize digital financial services. However, it is important to note that investors' inclination to participate in the crowdfunding market is shaped not only by their apprehension of risk but also by a multitude of internal and social factors. These factors – including performance expectancy, effort expectancy, facilitating conditions, and social influence – drawn from the unified theory of acceptance and use of technology (UTAUT) collectively influence their overall intention to participate (Gruzd et al., 2012; Helena Chiu et al., 2010).

Financial misconduct encompasses a spectrum of deceptive, fraudulent or unethical behaviors within the financial sector involving individuals or organizations engaging in illicit activities to gain personal or business profits (Belleflamme et al., 2015). This category of misconduct includes a wide array of activities characterized by manipulation, misrepresentation, or illegal practices within the financial domain (Ashton et al., 2021; Paruchuri and Misangyi, 2015; Velte, 2023; Watts and Ronald Buckley, 2017). These activities encompass actions such as insider trading, accounting fraud, market manipulation, embezzlement, Ponzi schemes, and bribery among others. Financial misconduct poses a significant threat to the integrity and stability of the financial system, erodes investor confidence, and presents substantial risks to individuals, institutions, and the broader economy. Izedonmi and Ibadin (2012) have categorized financial misconduct into several groups, including: fraud (such as financial statement fraud or asset misappropriation), corruption (such as bribery), money laundering, and market manipulation. The motivations behind financial misconduct often include factors such as financial pressure, weak internal controls, a lack of ethical culture, and personal greed (Albrecht et al., 2018).

In the context of crowdfunding and its impact on investors' intentions to participate, Belleflamme et al. (2014) argue that the inherent anonymity and limited direct control that investors have in crowdfunding platforms can create opportunities for financial misconduct. They emphasize factors like information asymmetry, inadequate due diligence, and weak regulatory oversight as contributing factors to the risk of financial misconduct in fundraising campaigns that seek to mobilize capital from the community. This insecurity for individual investors directly influences their willingness to invest. Colombo et al. (2015) highlight the adverse consequences of such misconduct – including reputational damage to crowdfunding platforms – which erodes backers' trust and diminishes overall investor confidence. Additionally, the impact of financial losses resulting from fraudulent or unsuccessful investment campaigns can shake investors' intentions to engage in online investing.

In the Vietnamese financial market, crowdfunding has existed for a long time but has yet to be widely developed. Culturally, Vietnamese people in particular (and Asians in general) tend to be more reserved about sharing their successes and often prefer to keep their business secrets rather than discuss their achievements. Business owners commonly have a reluctance to fully disclose and publicize their business ideas on online platforms. They are largely concerned that competitors in the same industry might copy their business ideas or sabotage their ventures. Furthermore, crowdfunding introduces significant risks – including information asymmetry, where project founders possess more information about their business activities than investors do – which could lead to adverse selection as lower-quality projects may secure funding by exaggerating their prospects (Ahlers et al., 2015). According to Binh (2012), a large number of businesses do not prepare annual reports to provide information to their customers and investors. The reason may be that these companies have not achieved good business results and are trying to conceal them; or it could be that they have had no business activities during the financial year (in the case of newly listed companies).

Nguyen and Nguyen (2020) argue that in Vietnam, investors with advanced financial literacy are more likely to show interest in participating in the financial market, while those with only basic financial literacy are less inclined to engage. According to Deng and Fei (2008), crowdfunding has not become widespread due to limited access to formal loans in developing countries – particularly in rural areas where financial literacy is low. In these regions, borrowing from relatives can simplify the process by avoiding the complexities of understanding loan policies from financial institutions or raising investments online. Additionally, in Vietnam where reputation is highly valued, people often rely on existing relationships or introductions from acquaintances (Ha Nam Khanh, 2020). As a result, attracting online investment is challenging as few investors fully trust strangers on the Internet – unless the fundraisers transparently disclose honest business records and a comprehensive business development plan. However, this is complicated by the above issue whereby few business owners are willing to openly share details of their operations online. Moreover, when borrowing from relatives or colleagues, information is likely to be more symmetrical and transparent due to mutual understanding based on social relationships (Besley and Coate, 1991). According to Ghatak (1999) and Turvey and Kong (2010), this transparency can help identify and mitigate risks associated with loan repayment for borrowers.

Furthermore, crowdfunding carries other significant risks – including information asymmetry, where project founders possess more information about their ventures than investors, potentially leading to adverse selection where lower-quality projects receive funding by overstating their prospects (Ahlers et al., 2015). A moral hazard risk exists where founders might undertake less risky projects after securing funding (Ahlers et al., 2015). Fraud risks are prevalent due to the anonymity of online platforms and investors' limited ability

to evaluate projects (Xiao, 2020). Funding risks encompass failures to achieve funding targets due to overestimation of needs (Belleflamme et al., 2014). Even successful projects face challenges in scaling operations to meet investor expectations (Gerber and Hui, 2013). Legal risks also persist because crowdfunding operates in a less regulated environment (Schwienbacher and Larralde, 2012). In summary, while crowdfunding offers benefits to entrepreneurs, information asymmetry and behavioral factors introduce various risks for investors. Projects with lower-quality proposals, limited founder experience, and fewer social connections tend to pose greater risks as investments (Colombo et al., 2015; Mollick and Kuppuswamy, 2014). While substantial research has explored the risks associated with crowdfunding, further investigation is warranted to develop effective mitigation strategies that strike a balance between fostering crowdfunding development and safeguarding investor interests.

The risks associated with using fintech and their impact on individuals' intentions to participate in investment have been highlighted by Zhu and Lu (2021). Technology has indeed provided a fertile ground for providers of digital financial services to potentially engage in unfair and unethical business practices, taking advantage of users' lack of awareness. This includes conducting careless and irresponsible operations and – in some cases – engaging in outright fraud, leading to the illegal dispossession of users' assets. Additionally, malicious activities such as malware, the use of malicious code, and various forms of fraud are employed to compromise networks, gain control, and access investors' private information (Perwej et al., 2021; Ryu, 2018). Research conducted by Chen (2013) and Ryu (2018) has demonstrated that cybersecurity risks can inflict significant harm on users' assets and personal information. Investors using financial technology products are regularly exposed to the risks of information leaks and breaches of personal data (Malady, 2016). Due to their relatively low level of security, digital financial services are susceptible to swift exploitation by fraudsters who employ sophisticated tactics, especially during online transactions. These risks can instill fear in investors that their personal financial information has been illicitly accessed, constituting a major obstacle to encouraging their participation in digital financial services (Hutchings and Holt, 2015). On the other hand, Ozili (2020) asserts that certain risks related to service providers – such as payment system disruptions stemming from system failures or technical glitches – can also provide opportunities for malicious actors to gain unauthorized access to user information. This can result in delays in the use of applications by users – particularly for online payment transactions – negatively impacting the convenience of financial technology products (Trautman, 2015). Such disruptions can also create psychological risks – causing investors to feel nervous, frustrated, depressed, or harbor negative thoughts during online trading (Lopez-Nicolas and Molina-Castillo, 2008). These multifaceted risks underscore the importance of robust cybersecurity measures and technological safeguards to bolster the trust and confidence of individuals in online financial services and investments.

2.2. Hypothesis development

2.2.1. Credibility

Cybersecurity relating to technology issues has been covered in the context of operational risk (BIS, 2010). Nevertheless, as an independent category of risk, the advent of digitization and datafication has prompted some to advocate for the delineation of technology-related risks – encompassing cybersecurity and data privacy. Buckley et al. (2019) advocate for a departure from conventional operational risk classifications to better address the distinctive challenges posed by technology-driven dynamics within contemporary organizational contexts.

Credibility risk is a significant concern in crowdfunding, as it involves the perception of trustworthiness and reliability associated with project creators, platforms and campaigns. This risk arises due to the potential for misleading or false information, exaggerated claims or unethical behavior – which can erode investor confidence and undermine the credibility of the crowdfunding ecosystem (Bukhari et al., 2020). Kenang and Gosal (2021) stated that the anonymous nature of online crowdfunding platforms makes it difficult for investors to verify creators' credentials, qualifications and claims about their projects. To attract investors, creators might misrepresent information about themselves, the project concept, milestones, and the use of funds. This can range from exaggeration to outright fraud. Block et al. (2018) pointed out that insufficient or infrequent communication between project creators and backers can erode credibility. Project creators should provide timely updates and respond to backer inquiries promptly to maintain transparency and demonstrate their commitment to the project's success. Additionally, credibility risk can also arise from the absence of external endorsements or social proof. Bukhari et al. (2020) showed that positive reviews, media coverage or endorsements from trusted individuals or organizations can enhance the credibility of a crowdfunding campaign. Conversely, the lack of such endorsements can raise concerns about the project's legitimacy and credibility. Belleflamme et al. (2014) also examine credibility risk in crowdfunding and highlight the importance of establishing and maintaining credibility to attract and retain backers. The result emphasizes that credibility plays a crucial role in shaping investor perceptions and willingness to participate in crowdfunding campaigns. Therefore, the hypothesis is proposed:

H1. Perceived risk of financial misconduct is positively reflected by credibility.

2.2.2. Market risk

Market risk is a significant concern in crowdfunding that arises due to the volatility and unpredictability of financial markets. This risk refers to the potential losses that investors may incur as a result of changes in market conditions – including fluctuations in interest rates, exchange rates, or overall economic conditions (Agrawal et al., 2015). Changes in interest rates can impact crowdfunding projects' borrowing costs and investors' required returns (Kgoroeadira et al., 2019). Rising rates make debt more expensive for projects and raise equity investors' yield expectations (Agrawal et al., 2015). Moreover, unanticipated inflation can decrease real returns for crowdfunding investors if project cash flows do not keep pace (Hsieh and Vu, 2021). Inflation also increases input costs – impacting project margins and profitability. For cross-border crowdfunding projects and investors, currency exchange rate fluctuations can

impact cash flows, costs and returns. Appreciation of project currencies may reduce investor returns (Niemand et al., 2018). Decreasing economic growth can reduce demand for crowdfunding projects' products and services, affecting their viability. It may also decrease investor risk appetite and capital available for crowdfunding and increase the potential loss for investors. Therefore, the hypothesis is proposed:

H2. Perceived risk of financial misconduct is positively reflected by market risk.

2.2.3. Asymmetric information risk

Information asymmetry is a key risk in crowdfunding that arises when project founders have more information about the quality and prospects of their projects than potential backers. This can lead to adverse selection, moral hazards and other risks for backers. Ahlers et al. (2015) identified that information asymmetry allows lower-quality projects to be funded due to overstating prospects, while higher-quality projects may be overlooked. It also emphasizes that information asymmetry can result in investors making suboptimal investment choices or facing higher levels of uncertainty. Project creators may provide incomplete or insufficient information about their projects – leading to a lack of transparency and increased information asymmetry. Investors may not have access to crucial details about the project's feasibility, risks or financial performance – making it challenging to assess the investment opportunity accurately. Vismara (2016) empirically examined information asymmetry in equity crowdfunding and found that information asymmetry is higher for smaller, first-time projects with more intangible assets. Moreover, investors are uncertain about creators' competence and commitment due to a lack of expertise and experience. Signaling through pitches and credentials is an imperfect measure of ability – after funding, investors have difficulty monitoring due to their limited knowledge and reliance on potentially biased creator updates (Chen et al., 2019). Therefore, the hypothesis is proposed:

H3. Perceived risk of financial misconduct is positively reflected by asymmetric information risk.

2.2.4. Financial risk

Financial risks in crowdfunding cover various factors that can impact the success and returns of investments. Financial risks in crowdfunding refer to the uncertainties and potential negative outcomes that can affect the financial returns and investments made in crowdfunding campaigns. These risks arise from various factors and can have significant implications for both project creators and investors. Belleflamme et al. (2014) discussed financial risks related to the uncertainty of project outcomes, potential project failure, and the likelihood of not receiving expected returns. Backers invest in crowdfunding campaigns with the expectation of receiving returns or rewards based on the success of the project. However, the ultimate outcomes of a project – such as its market reception, profitability, or potential for growth – are often uncertain. There is a possibility that a project may not achieve the desired outcomes, resulting in lower returns or even losses for investors (Mollick and Kuppuswamy, 2014). Crowdfunding campaigns may face the risk of project failure, where the project is unable to deliver the promised results or fulfil the backers' expectations. Project failure can occur due to various reasons – such as mismanagement, insufficient resources, or external factors beyond the project creator's control. When a project fails, investors may face financial losses as their investments may not be recoverable or yield the expected returns (Xiao, 2020). Additionally, one of the primary financial risks related to misconduct in crowdfunding is the presence of fraudulent campaigns. These campaigns intentionally deceive investors by misrepresenting information about the project, its feasibility, or the intended use of funds (Colombo et al., 2015). Misconduct in crowdfunding can involve the misappropriation or misuse of funds raised through a campaign. Project creators may divert the funds for personal use or allocate them to purposes different from those disclosed to investors (Xiao, 2020). This financial misconduct can result in significant financial losses for investors who expected their funds to be used for the development and execution of the project. Therefore, the hypothesis is proposed:

H4. Perceived risk of financial misconduct is positively reflected by financial risk.

To conclude, the authors have a cluster of hypotheses about perceived risk of financial misconduct:

H1-H4: Perceived risk of financial misconduct is a second-order factor of four first-order factors, including credibility, market risk, information asymmetry risk, and financial risk.

2.2.5. Security risk

Cybersecurity is a specialized aspect of information security that aims to safeguard computer systems, networks, databases, mobile devices, and electronic devices against unauthorized access, modification, or illegal data destruction (Perwej et al., 2021). Despite the advantages of fast online transactions, easy access to information, and lower costs of using fintech services compared to traditional financial transactions, there are potential security risks associated with using fintech services – as highlighted by Ryu (2018). These risks include cyber-attacks, online scams involving malware, malicious code, and other forms of fraud that could compromise network control and access to users' personal information. Such attacks can lead to significant damage to users' property and information. As a result, users tend to opt for reputable service providers who have established multiple layers of information security to mitigate the risks associated with using fintech services. This finding is supported by Chen (2013) and Ryu (2018), who also emphasized the significance of user awareness of potential network security risks. The following hypothesis is proposed:

H5. Perceived risk of fintech is positively reflected by the security risk.

2.2.6. Time-consuming risk

As stated by Ozili (2020), there would be risks associated not only with users utilizing fintech services but also originating from the

service providers themselves. These risks may include payment system disruptions resulting from technical or system failures. Such vulnerabilities in the control system could allow unauthorized access to user information by malicious actors. Addressing these issues often requires a significant amount of time on the part of the service provider to maintain and upgrade the system to its latest version, which can cause delays in the application's use by users. These transaction delays, especially during online payments, could adversely affect the convenience of fintech services (Trautman, 2015). The following hypothesis is proposed:

H6. Perceived risk of fintech is positively reflected by time-consuming risk.

2.2.7. Expense risk

Expense risks in using fintech services refer to the potential financial loss when using fintech services. Forsythe et al. (2006) stated that this risk could manifest in various forms – such as market risks (including a decline in the value of financial assets) as well as capital losses resulting from poor investment decisions due to a lack of understanding. Furthermore, users may experience monetary or property losses due to fraud, cyber-attacks or malware – which can result in the compromise of sensitive information. Tingchi Liu et al. (2013) noted that such types of risks can generate anxiety and diminish trust in fintech services. As a result, users of these services remain aware of the potential adverse outcomes of financial risks. The following hypothesis is proposed:

H7. Perceived risk of fintech is positively reflected by expense risk.

To conclude, the authors have a cluster of hypotheses about perceived risk of fintech:

H5-H7: Perceived risk of fintech is a second-order factor of three first-order factors, including security risk, time-consuming risk, and expense risk.

2.2.8. Perceived risk of fintech

Dowling (1986) pointed out that "perceived risk" is the consumer's understanding of the uncertainty and apprehension regarding the negative outcomes of acquiring and utilizing a service. Carter et al. (2016) and Hooda et al. (2022) discovered that risk perception plays a critical role in the decision-making process of using online services because it impacts the user's feelings of security and confidence in the service. If consumers perceive a significant risk associated with the service, they may opt not to use it or switch to other services with a higher level of safety. Ryu (2018) proposed a model based on those theories to evaluate the factors that make the user willing or hesitant to use fintech services. That model addresses four types of risks: financial, legal, security, and financial loss. The perceived risk obtained through the use of fintech services negatively influences the consumer's intention to continue using this type of service. The following hypothesis is proposed:

H8. Perceived risk of fintech has a negative impact on the intention to participate in crowdfunding.

Ashta and Herrmann (2021) supposed that if users perceive they face a high level of digital technology risks, they tend to be cautious about financial misconduct. Digital technology has made it easier for criminals to engage in financial misconduct (Fletcher, 2007). Perpetrators of financial fraud may use technology tricks to conceal their financial wrongdoing in a sophisticated manner. Technological risks can provide tools and platforms that enable fraudulent activities, unauthorized access, data manipulation, and other forms of financial misconduct. Moreover, the global nature of digital technology has made it harder for law enforcement agencies to track down and prosecute perpetrators of financial misconduct (Goutam, 2015). For crowdfunding, project makers and fintech companies have implemented strong security measures and monitored their systems to detect suspicious activities (Ulya, 2018; Wasiuzzaman, 2021). Measures may include the development of advanced fraud detection tools to identify and prevent financial misconduct. This is evidence that project makers have recognized the impact of fintech risks on investors' ability to participate in crowdfunding due to concerns about financial misconduct. Therefore, the hypothesis is proposed:

H9. Perceived risk of fintech has a positive impact on perceived risk of financial misconduct.

2.2.9. Perceived risk of financial misconduct

The success of crowdfunding campaigns heavily relies on investors' willingness to invest. Risk perception plays a crucial role in shaping individuals' intentions to invest in crowdfunding projects, as empirical evidence demonstrates a negative relationship between risk perception and intention to invest in crowdfunding campaigns. Ahlers et al. (2015) found that higher perceived investment risk leads to reduced investment intentions. Crowdfunding projects carry higher risks compared to traditional investments due to factors like lack of transparency, information asymmetry, and variability in the quality of projects. Investors' risk perception of crowdfunding projects influences their willingness and intention to invest. Similarly, Block et al. (2018) revealed that risk-averse individuals are less likely to participate in crowdfunding. Individual factors like risk tolerance, investment experience, and knowledge of crowdfunding impact an investor's risk perception and judgment of crowdfunding projects. Dushnitsky and Klueter (2017) also identified that risk perception negatively influences investment amounts in crowdfunding campaigns. Wang et al. (2021) suggest that project-related factors like project details, founder credentials and reviews also shape investors' risk perception and confidence in the project – hence, more transparency and information can reduce perceived risk. Additionally, intermediaries like crowdfunding platforms play a role in managing risks and perceptions through features like identity verification, due diligence and trust signals (Lin, 2017). Improving this sector can build confidence among investors and increase investment. Therefore, the following hypothesis is proposed:

H10. Perceived risk of financial misconduct has a negative impact on the intention to participate in crowdfunding.

3. Research methods and model

3.1. Methods

This study applied a quantitative research method to analyze the impact of risk perception on Vietnamese individuals' intention to participate in crowdfunding. The research methodology employed a purposive sampling technique, wherein individuals possessing pre-existing familiarity with crowdfunding were selectively included in the sampling pool. Furthermore, the study decided that the minimum age of respondents for participation was 24 years. This decision was predicated on the authors' conjecture that individuals below the age of 24 might lack the inclination to engage in crowdfunding activities – thereby potentially introducing bias into the study. Consequently, this age cohort was excluded from consideration in the sampling process. The authors conducted a 3-month online survey from March 2023 to May 2023, which received a positive response from the participants.

Quantitative data were collected through a self-administered survey questionnaire distributed to respondents both electronically via an online platform and in person using paper-based questionnaires. The questionnaire items were developed based on a comprehensive review of prior literature and refined following the research topic. Responses were measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The survey yielded 910 participants, out of which 838 responses were valid. The collected data were then analyzed using various statistical methods – including Cronbach's Alpha, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (SEM) using SPSS 26 and AMOS 24 software.

3.2. Research model

The proposed model by the authors is built upon the theory of perceived risk (TPR) by Bauer (1960) and the unified theory of acceptance and use of technology (UTAUT) by Venkatesh et al. (2003) to evaluate the likelihood of risk perception and analyze the factors influencing the intention to participate in crowdfunding by Vietnamese people. Integrating technology adoption and risk perception theories offers a novel perspective to advance the understanding of crowdfunding adoption decisions, particularly in emerging markets. (See Fig. 1 and Table 1)

4. Results and discussion

4.1. Descriptive statistics of the sample

Table 2 presents the general statistical results based on 838 valid observations. The survey collected satisfactory responses from 838 participants, of which 365 were male (43.6%), and 473 were female (56.4%) – indicating a relatively balanced gender ratio. In terms of age, the most significant proportion of respondents (33.2%) fell within the 24–30 age group, with 278 participants, followed by the 30–45 age group (31.6%) and the 45–60 age group (30.1%). A minor proportion of respondents (5.1%) were over 60, with 43 participants. In terms of income, 63.8% of respondents (535 participants) reported earning less than $1000, followed by the group earning $1000 - $2000 (26.6%) and those making above $2000 (9.6%). Regarding living areas, 77.8% of participants (652 people) lived in urban areas, while the remaining 22.2% (186 people) lived in rural areas. Overall, these factors indicate that the research sample is representative.

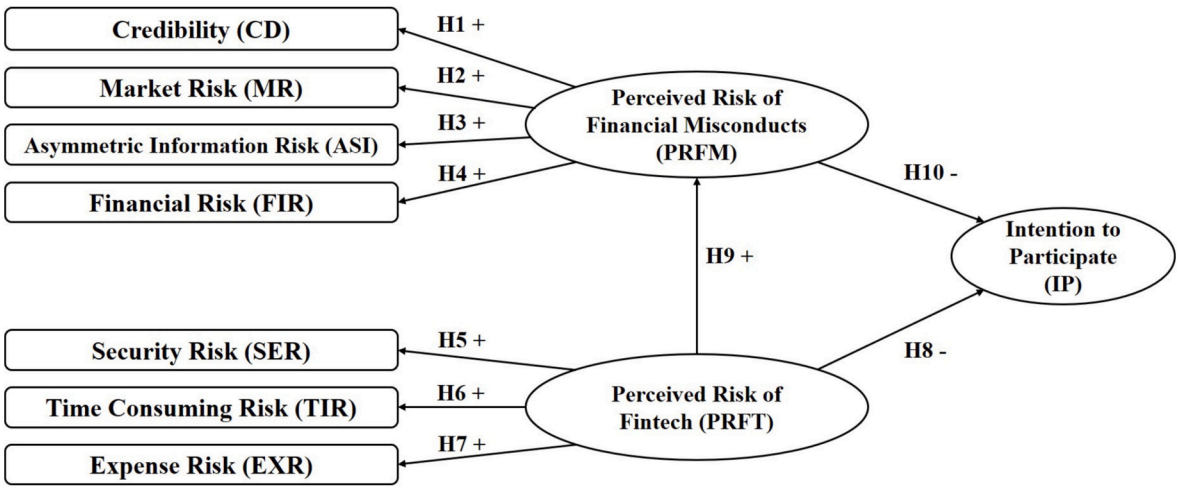

Fig. 1. Preliminary research model.
(Source: Authors' recommendation)

Table 1
Details regarding the variables included in the model.

Second-order constructs	First-order constructs	No. of observed variables
Perceived Risk of Financial Misconducts (PRFM)	Credibility (CD)	5
	Market Risk (MR)	3
	Asymmetric Information Risk (ASI)	4
	Financial Risk (FIR)	3
Perceived Risk of Fintech (PRFT)	Security Risk (SER)	4
	Time Consuming Risk (TIR)	5
	Expense Risk (EXR)	3
Intention to Participate (IP)		3

(Source: Authors' compilation)

4.2. Model results

The result of Table 3 the KMO coefficient is 0.868 > 0.5, showing that the factor analysis is consistent with the research data. Bartlett's test is 16,417.595, which has statistical significance (sig = 0.00 < 0.01), showing that observed variables are correlated with each other in the same factor.

For the test of Total Variance Extracted: The total value of variance extracted for the ninth factor is 71.152% > 50%, and the Eigenvalues for this factor is 1.010 > 1, showing that the observed variables begin to converge in the nine factors, explaining for 71.152% of the variation in survey data. The factor loading coefficients of all observed variables greater than 0.5 have good quality (Hair Jr et al., 2021). These results provide support for the factor structure and ability of the composite measures to adequately represent the constructs in the survey data for confirmatory factor analysis (CFA).

The results of the CFA analysis in Fig. 2 show that all observed variables have a standardized regression coefficient greater than 0.5 and have *P*-value = 0.000 < 0.01. Only the observed variable (SER4) is eliminated because it has a coefficient of 0.304. The CFA model with many factors, variance and covariance structure of the factors is further analyzed using second-order constructs and satisfies two conditions: (1) Variables in the model of first-order factors are correlated with each other; (2) Variables in the second-order factors model can contribute to the variation between factors in the first-order factors model (Hair Jr et al., 2021). In addition, the criterion of measuring the model's fit shows that Chi-square/df = 3.315 < 5 is acceptable. The GFI coefficient has a value of 0.900 (equivalent to 0.9), indicating an acceptable level of conformance. Furthermore, the CFI value = 0.938 > 0.9 indicates a favorable fit. Similarly, a TLI value of 0.931 > 0.9 indicates an acceptable fit. RMSEA = 0.053 < 0.06 and PCLOSE = 0.094 > 0.05 are considered good coefficients.

From the results of Fig. 3, the criteria to measure the fit of the model show that the value Chi-square/df = 3.315 < 5 should be assessed as acceptable. The GFI coefficient = 0.900 is good, CFI value = 0.938 > 0.9, and TLI value = 0.931 > 0.9, indicating an acceptable fit. The coefficients RMSEA = 0.053 < 0.06 and PCLOSE = 0.094 > 0.05 are considered good.

Results of Table 4 show that most factors reflect well in second-order constructs, with statistical significance (sig = 0.000 < 0.01), and only H4 is accepted at a 5% significant level. In order of contribution, the second-order construct PRFM includes: ASI (0.791), CD (0.488), MR (0.286), and FIR (0.101); the second-order construct PRFT includes: EXR (0.809), SER (0.798), and SER (0.798).

The results of Table 5 show that H1 is accepted at 1% significant level (99% confidence level), and H3, H9 are assessed to be significant at 10% significant level (90% confidence level). The regression coefficient shows that the impact of H9 is 0.900, which is the largest among all factors. Next, the factor with a strong influence from H8 has standardized regression coefficients of 0.432. The influence of H10 has a negative effect with the standardized regression coefficients of −0.460.

5. Results and discussion

The research results conclude that the perceived risk of financial misconduct in crowdfunding is positively reflected by credibility, market, asymmetric information, and financial risks. Therefore, H1, H2, H3 and H4 are accepted. This conclusion is aligned with

Table 2
Descriptive statistics of the sample.

Characteristics		Frequency	Ratio
Gender	Male	365	43.6%
	Female	473	56.4%
Age	24–30	278	33.2%
	30–45	265	31.6%
	45–60	252	30.1%
	Above 60	43	5.1%
Average monthly income (1 USD = 23,450 VND)	Below $1000	535	63.8%
	$1000 – 2000	223	26.6%
	Above $2000	80	9.6%
Living area	Urban	652	77.8%
	Countryside	186	22.2%

(Source: Aggregated from analysis)

Table 3
KMO and Bartlett's Test.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.868
Bartlett's Test of Sphericity	Approx. Chi-Square	16,417.595
	df	595
	Sig.	0.000

(Source: Aggregated from analysis)

Agrawal et al. (2015), Belleflamme et al. (2014), Bukhari et al. (2020), Vismara (2016), and Xiao (2020). The existence of these risks has important implications for project makers, investors and government. Project makers should be aware of the potential risks associated with crowdfunding and take steps to mitigate them. This may involve providing investors with detailed information about the project and its risks, building a strong reputation, and ensuring that the project is financially viable. Regarding investors, first and foremost they need to thoroughly research the market potential and feasibility of the project by analyzing factors such as development strategies, competitors and consumer demand. Additionally, to ensure the project's authenticity, investors should verify the project's legality and the credibility of its developers. Necessary documents to be checked include business licenses, certifications from reputable organizations, and information from independent sources to confirm that the project complies with legal regulations and is feasible. Furthermore, investors should closely monitor the project's progress and maintain regular communication with the businesses they have funded. This not only provides investors with peace of mind, but also encourages businesses to exercise caution and seriousness in ensuring that the capital is used effectively and in accordance with the initial plan. On the other hand, to minimize risk, investors should diversify their capital across multiple projects and different types of investments, rather than "putting all their eggs in one basket". From the government's perspective, the government should widely disseminate information to investors about the legal regulations related to crowdfunding in Vietnam. Understanding these regulations will help investors ensure that their investment activities comply with the law and protect their personal interests. Moreover, the government should consider regulating the crowdfunding industry to protect investors from fraud, ensure transparency and fairness, and promote the industry's growth.

The research results confirm that the perceived risk of financial misconduct has a negative impact on the intention to participate in crowdfunding. Therefore, H10 is accepted. This result is also consistent with Ahlers et al. (2015), Block et al. (2018), Dushnitsky and Klueter (2017), Lin (2017), and Wang et al. (2021). Crowdfunding campaigns involve high uncertainty and risks due to information gaps, lack of transparency, and less accountability compared to traditional funding. Investors with higher risk perception judge these campaigns more negatively and unfavorably. The prospect of total loss from failed campaigns further heightens risk perceptions. In addition, the risk of financial misconduct – such as fraud and misuse of funds – adds to investors' uncertainty. This heightened risk perception translates into lower intentions to actually invest in crowdfunding campaigns. To mitigate risk perception and encourage investment in crowdfunding campaigns, project makers should focus on transparency, credibility building and active communication. This includes providing comprehensive and accurate project information, showcasing expertise and past successes, and engaging with potential investors. On the investor side, factors key to making informed decisions include conducting thorough due diligence, diversifying investments, and enhancing financial literacy. Governments can contribute by establishing regulatory frameworks, implementing investor protection measures, and promoting awareness and education. By addressing these implications, stakeholders can collectively foster a secure and trusted crowdfunding ecosystem while mitigating risk perception.

The findings of this research corroborate that the perceived risk of fintech is positively reflected by factors including security risk, time-consuming risk, and expense risk. Consequently, hypotheses H5, H6, and H7 are accepted. While consumers are concerned that the Internet still lacks significant security concerning the use of their credit cards and the disclosure of personal information, research conducted by Chen (2013), Forsythe et al. (2006), and Perwej et al. (2021) agree with the author's conclusion. Security risks have emerged as a prominent and swiftly growing concern in the domain of online transactions (Harrison-Walker, 2002). Such risks can emanate from users disregarding data security warnings or service providers failing to enact robust measures to shield users from cyber threats. Moreover, the element of time-consuming risk is a pertinent consideration in the realm of fintech, given its propensity for introducing innovative and intricate concepts, tools and processes. This necessitates investors dedicating more time to learning and acquainting themselves with digital platforms for community fundraising. Furthermore, factors attributed to service providers – such as system maintenance and software debugging – may compel investors to temporarily suspend their service usage. This interruption could result in suspending investors' transactions, potentially causing them to miss valuable investment opportunities (Trautman, 2015). Additionally, expense-related concerns are notable – with individual investors expressing apprehension about the absence of transparent information relating to the costs associated with online-advertised projects and the financial protection mechanisms in place. Such opacity may elevate personal anxieties surrounding expense risks and undermine investor confidence in making informed investment decisions.

The results of this study indicate that the perceived risk of fintech has a positive impact on the intention to participate in crowdfunding, which is completely opposite to what H8 proposed initially. This result may seem surprising and contradictory to conventional wisdom, which assumes that risk perception adversely influences the intention to use. As Luo et al. (2010) noted, as financial risk increases and the likelihood of financial loss from fraudulent activities rises, perceived financial risk negatively influences the intention to use financial services on digital platforms. However, this finding is consistent with Zhao et al. (2017), suggesting a positive association between perceived risk and the intention to participate in crowdfunding on digital platforms. This can be explained because the convenience and benefits that fintech brings are considered by users to outweigh the risks. Investors may

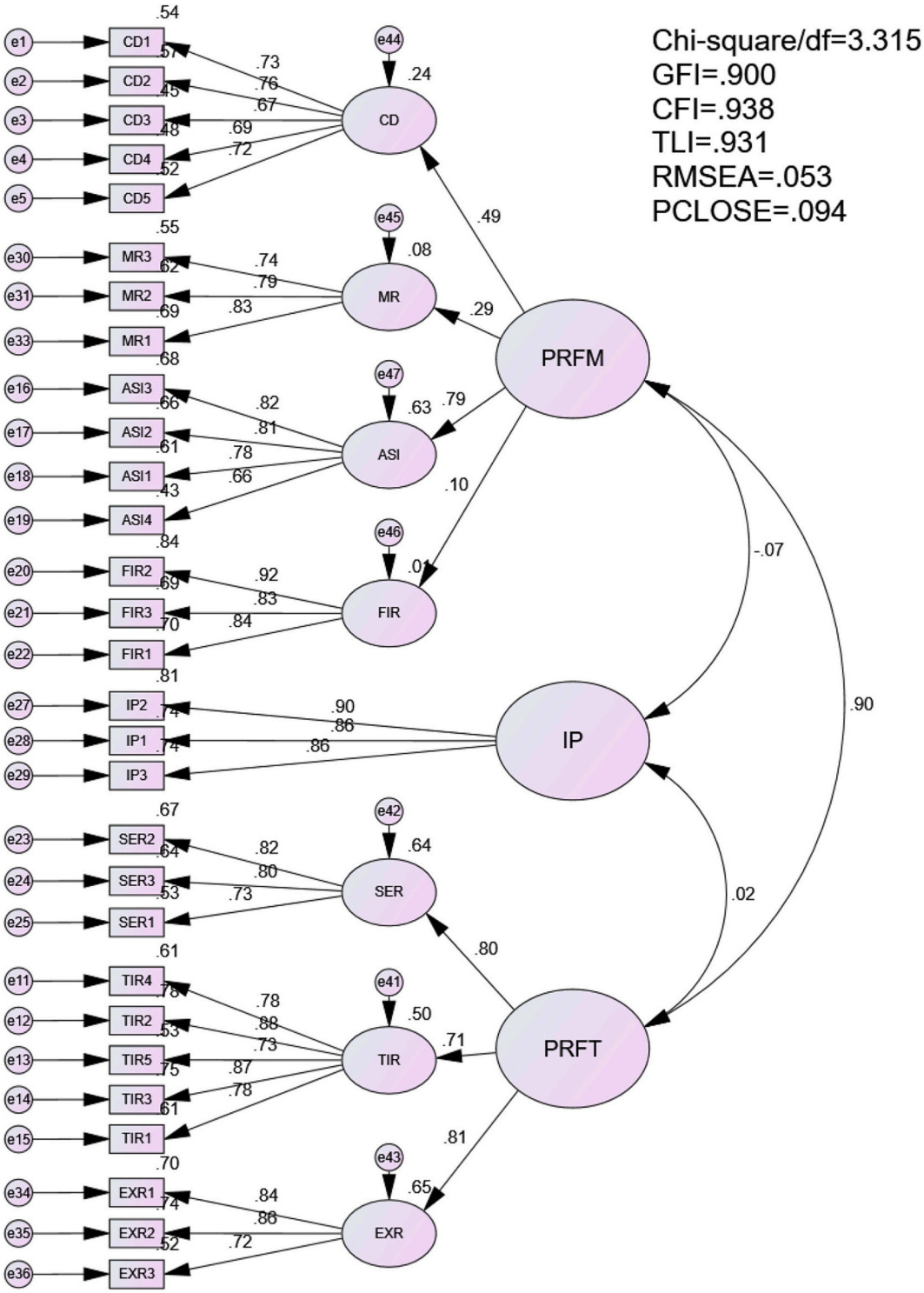

Fig. 2. The results of confirmatory factor analysis (CFA).
(Source: Calculation result from SPSS 26 and AMOS 24)

prioritize the immediate benefits and inadvertently overlook potential risks in their assessment. Simultaneously, within the context of crowdfunding, startups find it relatively straightforward to craft compelling marketing strategies emphasizing the benefits and utilities presented by their projects – which can captivate potential investors' attention. Moreover, it is essential to consider that the

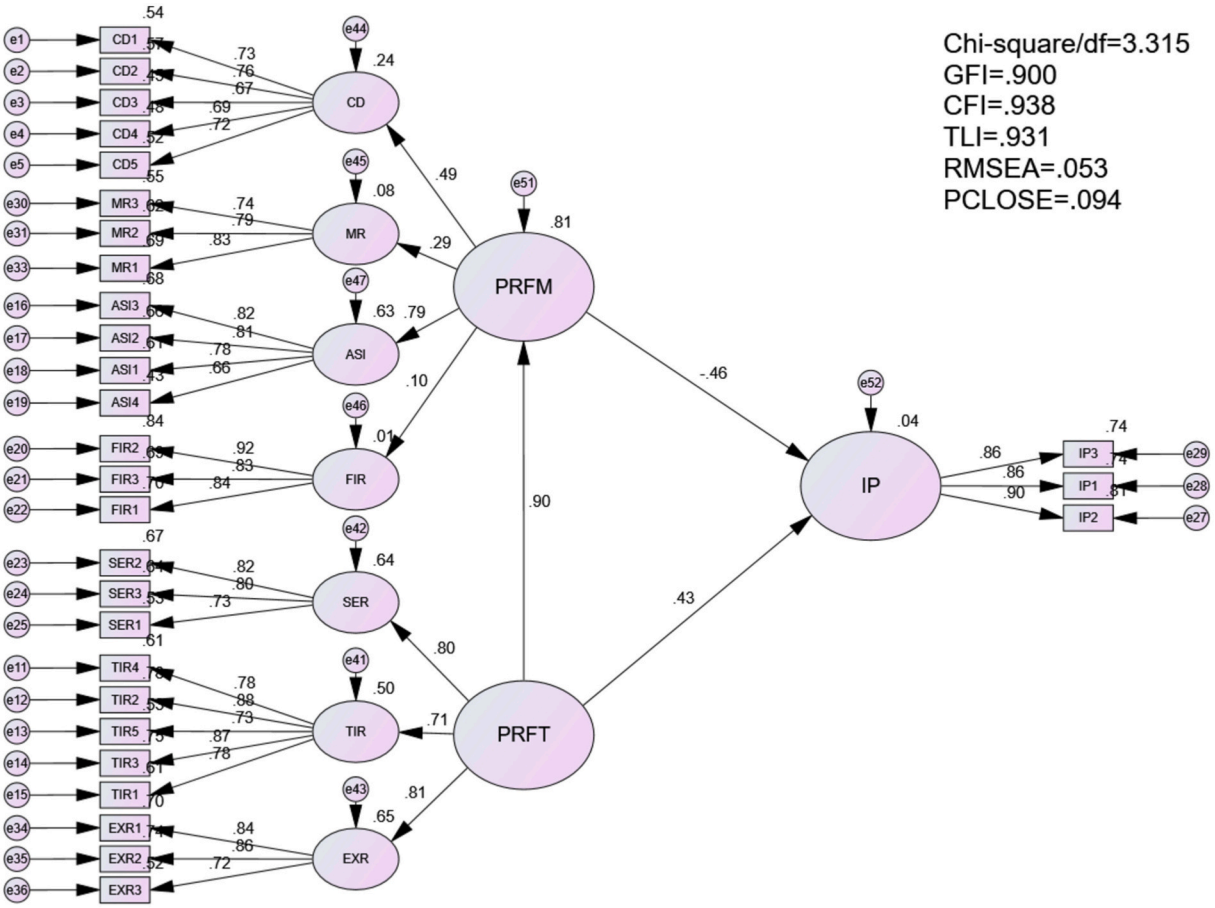

Fig. 3. SEM results of the theoretical model.
(Source: Calculation result from SPSS 26 and AMOS 24)

Table 4
Summarizing the reflective factors of the second-order construct.

Hypothesis	Second-order construct	First-order construct	Standardized Regression Weights	P-value	Conclusion
H1	Perceived Risk of Financial Misconduct (PRFM)	CD	0.488	***	Accept
H2		MR	0.286	***	Accept
H3		ASI	0.791	***	Accept
H4		FIR	0.101	0.017	Accept
H5	Perceived Risk of Fintech (PRFT)	SER	0.798	***	Accept
H6		TIR	0.708	***	Accept
H7		EXR	0.809	***	Accept

(Source: Calculation result from SPSS 26 and AMOS 24)

Table 5
Hypothesis testing results.

Hypothesis	Relationship			Standardized Regression Weights	P-value	Conclusion
H8	IP	←	PRFT	0.432	0.084	Accept
H9	PRFM	←	PRFT	0.900	***	Accept
H10	IP	←	PRFM	−0.460	0.070	Accept

(Source: Calculation result from SPSS 26 and AMOS 24)

relationship between the perceived risk of fintech and the intention to participate may be influenced by the "high risk, high return" concept. Given the constraints of the traditional financial system, project creators often resort to crowdfunding platforms. In order to garner investor interest, they frequently offer lower or promotional prices. Despite investors being cognizant of potential adverse outcomes associated with projects, the attraction of these promotional prices can still strongly motivate their funding intentions – even after realized the presence of risk.

The results indicate that the perceived risk of fintech has a positive impact on the perceived risk of financial misconduct; therefore, H9 is accepted. This finding aligns with Carter et al. (2016) and Hooda et al. (2022), suggesting that risk perception plays a crucial role in online service decision-making. Specifically, findings suggest users are cognizant that fintech can potentially enable or conceal financial misconduct – thus amplifying the scale and scope of such transgressions. These technology risks provide capabilities and platforms that facilitate fraudulent behaviors, unauthorized data access, manipulation, and other digital financial crimes. Thus, strengthening technology risk management practices is advised for financial institutions. Conducting comprehensive assessments of technological infrastructure, identifying vulnerabilities, and implementing robust security controls and measures can help mitigate hazards. Furthermore, regulators and policymakers need to collaborate closely with technology experts to develop policies and regulations that comprehensively address the escalating backdrop of technology risks and malfeasance in finance. Enhanced monitoring and enforcement of compliance with technology risk and misconduct regulations is also essential. Regulators can accomplish this through regular audits of financial systems, evaluating susceptibility to abuses, and imposing penalties for noncompliance. By proactively addressing technology risks in this manner, stakeholders can enhance the integrity and security of the digital financial ecosystem.

6. Conclusion

The study has conducted empirical research to examine the perceived risk factors associated with financial misconduct when participating in crowdfunding among Vietnamese individuals. These factors include credibility risk, market risk, asymmetric information risk, and financial risk. Additionally, the study explores the perceived risk of fintech, including security risk, time-consuming risk, and expense risk, which influence individuals' intentions to participate in crowdfunding.

The findings reveal that the perceived risk of financial misconduct has a negative impact on the intention to participate in crowdfunding – indicating that individuals are deterred from engaging in crowdfunding activities due to concerns about potential financial misconduct. On the other hand, the perceived risk of fintech positively influences individuals' intention to participate in crowdfunding – suggesting that individuals are attracted to crowdfunding despite recognizing the associated risks posed by fintech. Furthermore, the study reveals a positive relationship between the perceived risk of fintech and the perceived risk of financial misconduct in crowdfunding. This implies that individuals perceive fintech-related risks as factors that can contribute to financial misconduct within the crowdfunding context.

From the get-go, Vietnam needs to recognize all forms of crowdfunding as a legitimate investment activity under state management – and thereby establishing a legal framework to ensure the rights and interests of participating entities. The enactment of a legal framework is imperative. It will serve as the legal basis for entities engaging in community capital mobilization activities – thereby minimizing disputes among participating entities in such fundraising activities.

Overall, this study provides important insights into the factors that influence the perception of risk related to the intention to participate in crowdfunding, and offers valuable recommendations for improving the quality of crowdfunding in Vietnam. The authors recognize three areas where further research is needed: (1) The policy implications provided in this study have not been tested in practice to determine their effectiveness, and future research will explore crowdfunding from the perspective of project makers and policymakers to provide more comprehensive results; (2) A comparison between crowdfunding investors and non-investors was not conducted in this study, and future research will expand the geographic scope and increase the survey duration to evaluate the degree of differentiation across various demographic segments and the financial literacy factor; and (3) Crowdfunding in Vietnam is still a relatively new and interdisciplinary field with limited prior studies. Developing specific policies for diverse participant groups presents challenges. Therefore, future research should adopt a comprehensive approach – exploring various aspects such as economic factors, entrepreneurship, sociology and technology. Through interdisciplinary research, valuable insights can be gained – enabling the development of more effective crowdfunding policies in Vietnam that benefit all stakeholders involved.

Declaration of competing interest

The authors state that there is no conflict of interest.

We hereby declare that this is an original manuscript and has not been submitted to another journal.

Data availability

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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