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EXPLORING DETERMINANTS OF FINTECH ADOPTION IN EMERGING ECONOMIES: EVIDENCE FROM BANGLADESHI SMES

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Abstract:

This study examines the factors influencing small and medium-sized enterprises (SMEs) in Bangladesh to adopt financial technology (FinTech). The structural model was guided by the Technology–Organization–Environment (TOE) framework and the Unified Theory of Acceptance and Use of Technology (UTAUT). The determinants included organizational readiness, relative advantage, competitive

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pressure, perceived security, and facilitating conditions. Data were collected through a cross-sectional survey of 189 SMEs in Dhaka. Partial least squares structural equation modeling was used to analyse the responses. Organizational readiness, relative advantage, competitive pressure, and perceived security showed significant positive effects on adoption intention. Facilitating conditions were nonsignificant. The findings highlight the readiness of Bangladeshi SMEs to embrace FinTech. They recognize its advantages, respond to market dynamics, and prioritize security. Policymakers and service providers should strengthen organizational capacity, improve digital security frameworks, and emphasize competitive advantages. These actions can foster broader FinTech adoption and drive SME-led economic growth.

Keyword:

FinTech Adoption Intention, Perceived Relative Advantage, Perceived Security, Small and Medium Enterprises



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Introduction

FinTech is a term derived from the combination of “financial” or “finance” and “technology” (Saha et al., 2025; Abilawa et al., 2023; Hossain et al., 2023). Its primary objective is to integrate technology into the financial strategies of organizations. Also, FinTech is a sector that provides a variety of financial services using software (Ahsan et al., 2026). Globally, the growth and success of businesses increasingly depend on technological innovation (Nalluri & Chen, 2024). FinTech has emerged as one of the most transformative phenomena of our time (Hassan et al., 2023). Recent developments in FinTech have expanded financing opportunities for small and medium-sized enterprises (SMEs). These include online loan markets, crowd-casting applications, peer-to-peer lending programs, and supply-chain finance supported by digital infrastructures (Thottoli et al., 2024). On a smaller scale, firms now use FinTech for payments, cash transfers, quick loans, micro-insurance, digital assets, mobile banking, peer-to-peer lending, and crowdsourcing funds for new ideas (Liu et al., 2024).

Recent research shows that FinTech is increasingly transforming the internal business environment (Akartuna et al., 2022). SMEs in many regions are shifting from cash-based models to cashless systems enabled by digital platforms. This transition allows them to use a wider range of e-payment systems and mobile applications in sales, purchasing, and accounting (Gozman et al., 2018). Such developments form the basis for broader automation of SME processes, particularly in developing and transitional economies (Sanga & Aziakpono, 2023). Collectively, these innovations are expected to raise global GDP by about USD 12 trillion by 2030, underscoring the sector’s macroeconomic significance. Analysts therefore consider

FinTech a fundamental component of payments and transaction banking worldwide, rather than an exclusive innovation (Lisha et al., 2023). Over the past decade, FinTech has attracted more than USD 500 billion in investment. According to Chai (2024), the Asia-Pacific (APAC) region is projected to surpass the global FinTech leader by 2030. By 2027, financial operations in APAC are expected to account for nearly half of all non-cash payment transactions worldwide, growing at a compound annual rate of 19.8%. Despite this upward trend, FinTech adoption in Bangladesh remains limited. The World Bank (2022) ranks Bangladesh 78th out of 83 countries in terms of global FinTech adoption. Bangladeshi merchants also show one of the lowest levels of FinTech usage among Asian nations.

SMEs are widely regarded as the backbone of national economies (Savlovschi & Robu, 2011), with an estimated 400 million operating worldwide. By 2030, an additional 600 million jobs will be required globally, and SMEs are expected to provide the majority of them. SMEs account for over 90% of all enterprises, more than 50% of global employment, and approximately 55% of GDP in developed nations (World Trade Organization, 2016). In emerging economies, formal SMEs contribute around 60% of employment and 40% of GDP (Ndiaye et al., 2018). Since the global financial crisis, FinTech has played a pivotal role in supporting SMEs by streamlining financial operations (Verma et al., 2023). When adopted, FinTech can significantly enhance SMEs' operational conditions by offering payment solutions, improving customer experiences, driving digital transformation, and leveraging data for informed decision-making. Despite these benefits, global adoption remains limited. Only 25% of SMEs have integrated FinTech into their operations, and among them, 56% use banking and payment-related services (Ernst & Young, 2022). While overall adoption remains low, digital payment usage continues to increase annually (Statista, 2024).

SMEs play a significant role in Bangladesh's economy. As reported by Akter et al. (2021), SMEs account for 99% of the private sector and employ 70–80% of the workforce. The country has between 3.3 and 6 million registered SMEs, employing approximately 31 million people, which represents about 40% of the population aged 15 and above. Despite their substantial contribution, many SMEs in Bangladesh have yet to harness the full potential of digital technologies. Abilawa et al. (2023) note that limited awareness of FinTech services among individuals and companies remains a major barrier to adoption in Bangladesh. Globally, the average FinTech adoption rate is 64%, while only 25% of SMEs have adopted FinTech. Bangladesh's SMEs fall within the bottom 40% of global markets. The Asian Development Bank Institute (2019) suggests that greater FinTech adoption among SMEs could significantly enhance economic output and employment generation. According to the Ministry of Finance (2023), Bangladesh's SME sector recorded GDP growth of 15.68% in 2021–2022 and 8.46% in 2022–2023. In contrast, national GDP growth declined from 7.1% to 5.3% over the same period (ADB, 2024), while inflation rose from 6.2% to 8.7%. These trends indicate that the COVID-19 pandemic continues to affect the economy. Achieving a GDP growth target of 6.5% and an inflation rate of 6.6% for 2023–2024 will therefore be challenging.

Creating the intention to adopt FinTech among SMEs in Bangladesh remains challenging due to several industry limitations. Although SMEs are major contributors to Bangladesh's GDP, many have yet to fully embrace digital technologies. The combination of FinTech and SMEs is a critical area to explore, particularly as national GDP growth has slowed and inflation has risen. Existing studies on this topic are limited, so the present research offers significant academic and practical contributions in the Bangladeshi context. Moreover, Bangladesh's large economy, dense population, and limited financial service facilities compared to other SAARC

countries highlight the potential for shifting from traditional finance to modern entrepreneurial finance. FinTech adoption can enhance financial inclusion, enabling more SMEs to access financial services and supporting government efforts (Sayeh, 2022).

This study was conducted from an organizational perspective. Historically, numerous theoretical frameworks have been employed to explain why individuals and businesses adopt new technologies (Flavián et al., 2022). The Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003), the Technology Acceptance Model (TAM) (Davis, 1986), the Diffusion of Innovations (DOI) (Rogers, 1962), and the Technology–Organization–Environment (TOE) framework (Tornatzky et al., 1990) are among the most prominent models. Modern literature increasingly emphasizes that adoption decision-making models provide effective structures for understanding how SMEs embrace new information technologies. However, to reduce theoretical overlap and improve clarity, this study integrates the TOE framework and UTAUT, as these two models directly align with the variables under investigation. Awa et al. (2015), Qirim (2006), and Tornatzky et al. (1990) noted that the range of technologies used both inside and outside the company are encompassed within the concept of technology adoption. These include perceived advantage, organizational readiness, security, and competitiveness. Within this context, the TOE framework provides a comprehensive lens, as it explicitly incorporates technological, organizational, and environmental factors that shape adoption decisions. Accordingly, relative advantage, organizational readiness, perceived security, and competitive pressure—are firmly grounded in the TOE perspective. Moreover, Jafri et al. (2024) observed that FinTech-related studies often rely on UTAUT to examine factors such as facilitating conditions and behavioural intention to adopt.

Literature Review

An organizations or individual's interest in implementing FinTech is a critical issue. Behavioral intention to adopt FinTech refers to the readiness to engage in a specific activity (Mufarih et al., 2020). In business operations, such intention is recognized as an important antecedent of actual technology use. Several efforts have been made to develop the theory and empirically define behavioral intention (Abueid et al., 2025; Vijayasathy, 2004). Empirical evidence shows that SMEs are often family-owned and face significant financial, industry, and market-related challenges. The replacement of analogue systems with digital systems has therefore become unavoidable. The COVID-19 pandemic accelerated the digitalization of payment systems and transactions (Karim et al., 2022). Despite ongoing complications, the uptake of FinTech has generated societal benefits. The speed and accuracy enabled by FinTech systems improve financial reporting and support organizational decision-making at multiple levels within companies (Bonsu et al., 2023).

Perceived organizational readiness refers to an organization's preparedness to adopt new technology. According to Clohessy and Acton (2019), this concept includes perceptions of human, financial, and technological assets within the organization. This construct is explained through both the Technology–Organization–Environment (TOE) framework and the Diffusion of Innovations (DOI) theory. While TOE examines both external and internal influences on industries, DOI is narrower and focuses on organizational approaches to adopting new concepts (Lutfi et al., 2020). Preparedness may not appear critical in countries with advanced industries and high levels of activity. However, research on the readiness of SMEs to adopt FinTech solutions is particularly important in developing countries such as Bangladesh. Ahmad Trawnih et al. (2023) demonstrated that organizational readiness is strongly correlated with SMEs'

willingness to adopt FinTech. Similarly, Abed (2020) asserted that the strategic behaviours of SMEs in Saudi Arabia are significantly influenced by the degree of organizational preparedness.

Relative advantage refers to the perception that a new technology is superior to existing alternatives (Sharma et al., 2024). The perceived balance of benefits and costs strongly influences purchasing behaviour, particularly in business contexts, where advantages are expected to outweigh expenses (Sun et al., 2020). Mukherjee et al. (2023) demonstrated that the relative advantage of technology affects SMEs' willingness to implement it in their financial activities. SMEs are more inclined to adopt newer technologies when they perceive a clear advantage compared to older systems (Ghobakhloo et al., 2011). To and Ngai (2006) emphasized that businesses seek innovations that enhance competitiveness, add value, or gain social acceptance. As Khayer et al. (2020) described, the adoption of cloud computing among SMEs is largely driven by its perceived benefits. Relative advantage has consistently been identified as a key determinant in studies of technology adoption, including those on artificial intelligence (Chen et al., 2021; Huang et al., 2022). Mukherjee et al. (2023) further observed that internet usage was higher among individuals who perceived it as beneficial.

Perceived competitive pressure refers to the sense of urgency created by competition within a particular industry (Sun et al., 2020). Both industry participants and consumers contribute to this pressure, signaling the perceived need for organizational change to remain competitive. Tyler et al. (2020) argued that companies, and SMEs in particular, often struggle to identify precise solutions to competitive pressure, as the challenges faced by small firms differ significantly from those of large-scale enterprises. In the context of FinTech, first movers often enjoy competitive advantages within their industries (Abbasi et al., 2022). Gangwar et al. (2015) further demonstrated that FinTech adoption helps SMEs maintain competitiveness. This appraisal of competitive pressures is especially relevant for Bangladeshi SMEs, given the sector's size and density. The pressure to integrate FinTech is likely to intensify as more small enterprises adopt it, with customers and trading partners often driving this need (Wamba et al., 2020; Maroufkhani et al., 2020). Maduku et al. (2016) also showed that the extent of competition directly influences the adoption of cloud computing, highlighting that SMEs must continually meet client expectations when opting to use such services.

Perceived security concerns refer to individuals' assessments of the reliability and potential risks of electronic payment systems (Oney et al., 2017). Such evaluations include technological beliefs, such as the need to protect personal and financial information, which is considered a pivotal element of FinTech acceptance (Laksamana et al., 2023). Users and organizations interpret perceived security differently, and these perceptions significantly influence adoption intention. According to Kim et al. (2010), individuals are more comfortable using technologies they perceive as safe. Conversely, security issues often represent a major and sometimes undefined barrier to technology adoption (Centeno, 2002). At the organizational level, the highest priorities in adopting new technologies include establishing strong security structures and ensuring adequate technical support for users, customers, and employees—critical components for effective adoption (Kim et al., 2010). Empirical research consistently shows that people are more likely to use FinTech when they feel secure. For example, Palanisamy and Shi (2023) found that security considerations play an imperative role in influencing the use of mobile cloud computing among SME owners. Similarly, Chen et al. (2021) identified a positive relationship between perceived security and SMEs' willingness in Bangladesh to adopt peer-to-peer (P2P) financing platforms.

Facilitating conditions refer to the availability of technical and administrative resources required for individuals to use a technological tool (Lv et al., 2024). This construct is essential in determining whether people perceive technology-related tasks as challenging or simple (Cabanillas et al., 2024). At the organizational level, the implementation of any new business venture requires adequate facilitating conditions, particularly when SMEs are making investment decisions. Executives and business owners are more willing to embrace new technologies when expected returns on investment are achievable. Therefore, it is crucial to introduce sufficient technical infrastructure and supportive measures to maximize perceived usefulness (Wang & Esperanca, 2023; Dwivedi et al., 2021). Research findings consistently reveal that enabling conditions significantly affect user acceptance of digital technologies. Wei et al. (2021), Oliveira et al. (2014), and Wong et al. (2020) found strong correlations between determinants of FinTech penetration and FinTech use. These results demonstrate that robust technological infrastructure combined with adequate supportive services dramatically increases the likelihood of successful adoption. Moreover, to further raise adoption levels, users can be assisted in meeting their expectations through structured guidance during the learning process (Srivastava et al., 2024).

The current study examines aspects of technology adoption based on the TOE and UTAUT frameworks, both of which include factors proven to influence technology adoption (Lutfi et al., 2020). Bhutto et al. (2023) highlighted a significant methodological gap between earlier research on technology adoption and more recent studies on FinTech adoption. In Bangladesh, SMEs acknowledge the potential future benefits of FinTech, yet many continue to rely on traditional operational patterns. Furthermore, there is very limited research on the organizational intention to adopt FinTech among SMEs in Bangladesh. This gap is addressed in the present study by proposing the following research model: the influence of a combination of independent variables (1) perceived organizational readiness, (2) perceived relative advantage, (3) perceived competitive pressure, (4) perceived security, and (5) facilitating conditions. The framework represents an initial stage toward a comprehensive exploration of how SMEs adopt FinTech and is presented diagrammatically in Figure 1.

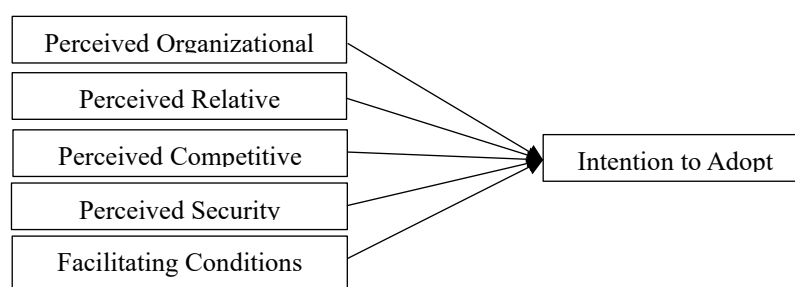


Figure 1: Research Model

Source: Source: Authors Own Compilation

Intention to Adopt

Intention to adopt refers to the expressed willingness of an individual or organization to undertake a specific action (Mufarikh et al., 2020). According to Davis (1989), certain behavioral practices can predict adoption intention. Foregrounded as a key aspect of decision making, intention has consistently been identified as vital in this literature (Aref, 2023).

Empirical studies demonstrate that an organization's stated plan to utilize a technological tool typically follows a normal tendency toward actual use. Numerous theoretical and empirical studies have explored behavioral intention (Vijayasathy, 2004). In the present investigation, the dependent variable is defined as the intention to adopt FinTech. Intention to adopt has also been established as a dependent variable in prior studies (Diieguez et al., 2023; Jang et al., 2016).

Perceived Organizational Readiness

Perceived organizational readiness, operationalized as financial capacity, technological infrastructure, business culture, internal networks, and collaboration, is a necessary precondition for the effective implementation of FinTech. Without such readiness, adoption may be considered impossible. Organizations that introduce FinTech into their practices must also develop strategic skills to address emerging challenges (Marei et al., 2023; Urumsah et al., 2022). Although a substantial body of literature has identified organizational readiness as an independent predictor of FinTech adoption, empirical evidence remains inconsistent. Marei et al. (2023) reported a significant influence, whereas Urumsah et al. (2022) and Hiran and Henten (2020) reached less conclusive results. These differences highlight the need for further attention to this construct. In light of the current understanding of Bangladeshi SMEs and their intentions to adopt financial technology, the following proposal is presented:

H1: Perceived organizational readiness has a positive impact on the intention to adopt FinTech.

Perceived Relative Advantage

Relative advantage refers to the perceived efficiency of a technology when contrasted with alternative technological options (Sharma et al., 2024). This judgment is often operationalized through cost-benefit analyses: when evidence suggests that a proposed investment will yield superior returns, organizational units are motivated to adopt the technology or pursue technological progress (Sun et al., 2020). Consequently, relative advantage is one of the most critical factors contributing to the acceptance of specific innovations by users (Saad et al., 2022). Repeated findings confirm a positive correlation between perceived relative advantage and intention to purchase (Xie et al., 2022). Marei et al. (2023) reported a strong and significant correlation between perceived relative advantage and the adoption of FinTech services, whereas Zakariyah et al. (2023) did not find specific links between relative advantage and the adoption of FinTech services in Waqf institutions in Bangladesh. Collectively, these contrasting findings highlight the need for further academic attention to achieve a clearer understanding of the processes involved in innovation assimilation. Based on this reasoning, the following hypothesis is proposed:

H2: Perceived relative advantage has a positive impact on the intention to adopt FinTech.

Perceived Competitive Pressure

Perceived competitive pressure is the subjective sense that a firm must invest in new technologies due to parallel expectations from customers and competitors (Sun et al., 2020). This construct is crucial in sustaining innovation. In their attempt to operationalize competitive pressure, Tyler et al. (2020) noted that accurate measurement is particularly difficult for SMEs, given their distinct challenges compared to larger firms and their higher concentration in certain

regions. Conversely, Chau et al. (2021) concluded that competitive pressure had only a limited effect on the diffusion of m-commerce, whereas Marei et al. (2023) found that competitive pressure positively influenced behavioral intention to adopt m-commerce. These contrasting findings suggest that competitive pressure does not operate uniformly across different technologies and contexts. Given these inconsistencies and the importance of this construct for Bangladeshi SMEs, the following proposal is presented:

H3: Perceived competitive pressure has a positive impact on the intention to adopt FinTech

Perceived Security

Perceived security is defined as consumers' mental estimation of the safety of electronic transactions in terms of protecting their information and assets (Laksamana et al., 2023). Security in the digital payment environment is one of the central factors in FinTech adoption, and its relevance remains a crucial focus of FinTech resources. As Lee and Turban (2001) emphasized, security infrastructure must be sufficiently robust to operate continuously in order to sustain digital transactions. Previous studies have treated perceived security as an independent variable and reported differing conclusions. Laksamana et al. (2023) found a positive relationship between perceived security and intention to adopt mobile payments, whereas Haqqi and Suzianti (2020) identified perceived security as a negative force hindering adoption intention. Given these varied results, this study introduces perceived security as an independent variable, and the following proposal is presented:

H4: Perceived security has a positive impact on the intention to adopt FinTech.

Facilitating Conditions

Facilitating conditions refer to the confidence an individual or group has in the sufficiency of support services and facilities. The successful implementation of FinTech depends on the availability of support structures and training programs that enable staff to effectively utilize the technology (Alkhwaldi et al., 2022). According to Xie et al. (2021) and Alalwan et al. (2017), there is a positive relationship between facilitating conditions and the success of FinTech adoption, whereas Ramprakash et al. (2023) did not acknowledge such an impact. This divergence will therefore be examined through a conflict-rational lens, with facilitating conditions introduced as an independent variable. Based on this reasoning, the following proposal is presented:

H5: Facilitating conditions have a positive impact on the intention to adopt FinTech.

Methodology

The study was conducted within a quantitative positivist paradigm, focusing on hypothesis development and testing through deductive reasoning and the application of systematic quantitative methods (Alharahsheh & Pius, 2020; Clark, 1998; Park et al., 2020). A cross-sectional research design was employed to analyse the rate of FinTech adoption among SMEs in Bangladesh and to identify the key factors influencing adoption. A purposely designed structured questionnaire was developed for proprietors and senior managers of SMEs. The initial draft was critically reviewed by experts in the field to assess the formulation and relevance of the items. Their feedback was used to refine the questionnaire, thereby enhancing

its validity. A pilot study was subsequently conducted to identify problematic items those that were ignored, misinterpreted, avoided, or incorrectly answered by respondents. These items were revised, resulting in the final version of the questionnaire. The instrument included six constructs derived from the literature: perceived organizational readiness, perceived relative advantage, perceived competitive pressure, perceived security, facilitating conditions, and intention to adopt FinTech. Items were adapted from previous studies to align with the current research context, with phrasing modified to reflect the study's objectives. To enhance clarity, reduce bias, and improve accuracy, a five-point Likert scale was employed (Dwivedi et al., 2021; Mascarenhas et al., 2021). This research adopted an explanatory design, developing hypotheses to provide insights into FinTech adoption behaviors among SMEs in Bangladesh.

Methods for Data Collection and Sampling

The research employed non-probability purposive sampling, focusing on SMEs in Bangladesh. A total of 189 SMEs in Dhaka individuals participated in the survey, comprising both owners and managers. Hair et al. (2022) emphasized that a minimum of 100 samples is required for multivariate analysis, particularly factor analysis, and further suggested that there should be 10 to 15 instances for each variable. Barclay and Thompson (1995) proposed a prudent guideline whereby the sample size should be at least ten times greater than, or ten times the maximum number of, structural paths directed toward a specific construct in the model. Questionnaires were distributed and completed online using Google Forms. This research relied exclusively on primary data based on Five-point Likert Scale.

Profile of the Respondents

The following represent the profile of the respondents. The initial survey questions focused on the frequency and duration of FinTech utilization.

Table 1: Profile of the Respondents

	Frequency	Percentage
Frequency of using FinTech services		
0 times	15	7.93%
1–3 times	69	36.51%
4–6 times	55	29.10%
7–10 times	26	13.76%
Greater than 10 times	24	12.70%
Total	189	100%
How long your organization has used FinTech?		
Less than 1 year	58	30.69%
Between 1 to 3 years	80	42.33%
Between 3 to 5 years	28	14.81%
More than 5 years	23	12.17%
Total	189	100%

Source: Authors Own Compilation

The Table 1 above includes the frequency distribution of the respondents. The findings indicate that 36.51% of SMEs reported using FinTech services 1–3 times, while 7.93% stated that they had never used FinTech in their operations. Regarding duration of use, 42.33% had adopted FinTech for 1–3 years, whereas 30.69% had used it for less than 1 year.

Data Analysis

The collected data were organized in Microsoft Excel and subsequently imported into Smart PLS for analysis. The data were analysed using PLS-SEM, which consists of measurement model and structural model analyses.

Measurement Model Assessment

The analysis began with an assessment of indicator reliability, which involved examining the factor loadings of each item. Hair et al. (2019) suggested that a minimum loading of 0.708 is acceptable. Most indicators exceeded this threshold, except FC1 (0.648), PCP2 (0.659), POR3 (0.685), PRA2 (0.693), PS1 (0.633), and PS3 (0.639). Hair et al. (2021) and Hulland (1999) noted that in social science research, slightly lower loadings are sometimes acceptable, particularly when newly developed scales are employed. Items should only be removed if doing so enhances the construct’s convergent validity or internal consistency reliability; otherwise, loadings ranging from 0.40 to 0.708 may remain included.

Table 2: Indicator Loadings

	BI
BI1	0.906
BI2	0.887
BI3	0.865
FC1	0.648
FC2	0.745
FC3	0.811
FC4	0.707
PCP1	0.833
PCP2	0.659
PCP3	0.820
POR1	0.724
POR2	0.836
POR3	0.685
POR4	0.747
PRA1	0.719
PRA2	0.693
PRA3	0.843
PS1	0.633
PS2	0.824
PS3	0.639
PS4	0.755

Source: Smart PLS 4.1.1.1

The reliability and convergent validity results demonstrated strong internal consistency, with Cronbach's alpha values ranging from 0.669 to 0.863 and composite reliability (CR) values exceeding 0.70. All constructs surpassed the recommended threshold of 0.50 for average variance extracted (AVE), confirming acceptable convergent validity (Hair et al., 2019).

Table 3: Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability (ρa)	Composite Reliability (ρc)	AVE
BI	0.863	0.866	0.916	0.785
FC	0.709	0.724	0.819	0.533
PCP	0.669	0.701	0.817	0.601
POR	0.738	0.747	0.836	0.562
PRA	0.672	0.767	0.797	0.569
PS	0.701	0.775	0.807	0.515

Source: Smart PLS 4.1.1.1

Following the assessment of convergent validity, discriminant validity was evaluated using both the Fornell–Larcker criterion and the heterotrait–monotrait ratio (HTMT). Henseler et al. (2015) stated that an HTMT score of 0.90 indicates limited discriminant validity, while a more conservative threshold of 0.85 is recommended when constructs are conceptually distinct. As shown in Tables 4 and 5, all constructs satisfied the criteria for discriminant validity.

Table 4: Fornell–Larcker Criterion

	BI	FC	PCP	POR	PRA	PS
BI	0.886					
FC	0.583	0.730				
PCP	0.569	0.582	0.775			
POR	0.578	0.657	0.566	0.750		
PRA	0.543	0.521	0.408	0.428	0.755	
PS	0.506	0.589	0.352	0.341	0.590	0.717

Source: Smart PLS 4.1.1.1

Table 5: HTMT

	BI	FC	PCP	POR	PRA	PS
BI						
FC	0.731					
PCP	0.730	0.809				
POR	0.721	0.885	0.797			
PRA	0.622	0.707	0.497	0.525		
PS	0.591	0.857	0.456	0.426	0.823	

Source: Smart PLS 4.1.1.1

Structural Model Assessment

To assess the structural relationships, collinearity diagnostics were conducted to ensure that multicollinearity did not bias the regression results (Hair et al., 2019). It is commonly asserted that variance inflation factor (VIF) values exceeding 5 are problematic, although issues may arise at values as low as 3 (Becker et al., 2015). Hair et al. (2022) recommended that VIF values remain below 3. As shown in Table 6, all VIF values satisfied the requisite threshold.

Table 6: VIF

	BI
FC	2.610
PCP	1.684
POR	1.985
PRA	1.728
PS	1.880

Source: Smart PLS 4.1.1.1

Following the assessment of collinearity, the coefficient of determination (R^2) was examined to evaluate the model’s explanatory power. Hair et al. (2011) indicated that R^2 values of 0.25, 0.50, and 0.75 correspond to weak, moderate, and strong explanatory levels, respectively. The model employed in this study produced an R^2 value of 0.520 for behavioral intention (BI), reflecting moderate explanatory power as it accounts for 52% of the variance in SMEs’ intention to adopt FinTech.

Subsequently, Hypotheses were tested based on p-values, with $p < .05$ indicating statistical significance (Nawayseh, 2020). As shown in Table 7, hypotheses H1, H2, H3 and H4 were supported, while H5 (FC → BI) was not statistically significant ($p = .405$). Figure 2 illustrates the path coefficients and t-values for the structural model, indicating the strength and significance of each proposed relationship. The arrows represent the direction of influence from the five independent constructs—Perceived Organizational Readiness (POR), Perceived Relative Advantage (PRA), Perceived Competitive Pressure (PCP), Perceived Security (PS), and Facilitating Conditions (FC)—toward Behavioral Intention (BI) to adopt FinTech among SMEs. As depicted in the figure, PCP → BI ($t = 3.577$), POR → BI ($t = 2.984$), PRA → BI ($t = 2.608$), and PS → BI ($t = 2.517$) all have statistically significant t-values (greater than 1.96), confirming their positive impact on behavioral intention at the 5% significance level. Conversely, the path from FC → BI shows a t-value of 0.833, indicating no statistically significant effect, consistent with the p-value of 0.405 reported in Table 7. These results support hypotheses H1 to H4, while H5 is not supported. Collectively, these interactions account for 52% of the variance in SMEs’ propensity to adopt FinTech ($R^2 = 0.520$), demonstrating moderate explanatory power as per Hair et al. (2011).

Table 7: Path Coefficients and Significance Levels

Path	Original Sample (O)	Sample Mean (M)	Std. Dev. (STDEV)	t-Statistic	p-Value
H1. POR → BI	0.248	0.246	0.083	2.984	.003
H2. PRA → BI	0.194	0.191	0.074	2.608	.009
H3. PCP → BI	0.245	0.246	0.068	3.577	.000
H4. PS → BI	0.178	0.182	0.071	2.517	.012
H5. FC → BI	0.071	0.077	0.086	0.833	.405

Source: Smart PLS 4.1.1.1

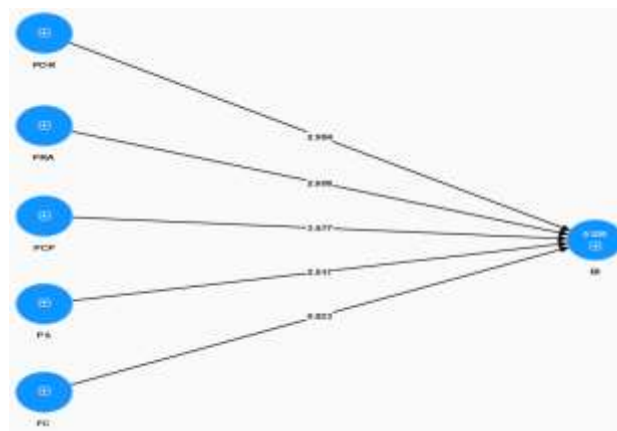


Figure 2. Path Coefficients (T-values)

Source: Smart PLS 4.1.1.1

Predictive Power Assessment

Shmueli et al. (2016, 2019) developed PLS-Predict to evaluate a model’s predictive capability beyond the sample data. While R^2 reflects in-sample explanatory power, PLS-Predict provides insight into predictive relevance. A 10-fold cross-validation was performed, meeting the minimum sample requirement ($N = 18.9$) as recommended.

Step 1: Predictive Relevance (Q^2): Hair et al. (2019) noted that Q^2 values greater than 0 indicate predictive relevance, with values of 0.25 and 0.50 suggesting medium and high levels of predictive accuracy, respectively. In this study, Q^2 values ranged from 0.325 to 0.414, indicating a medium level of predictive relevance.

Step 2: Prediction Error (PLS vs. LM): Prediction errors were examined using PLS-SEM and a linear model (LM) through RMSE and MAE metrics. As shown in Table 10, the PLS model produced marginally lower or comparable error rates, indicating moderate predictive performance.

Table 10: PLS Predict Comparison (PLS vs. Linear Model)

Indicator	Q ² predict	PLS_RM SE	PLS_M AE	LM_RM SE	LM_M AE
BI1	0.414	0.618	0.499	0.628	0.489
BI2	0.325	0.635	0.512	0.655	0.529
BI3	0.379	0.654	0.537	0.680	0.539

So, following Hair et al. (2019) and Shmueli et al. (2019), this analysis demonstrated that the model retains moderate predictive value, despite a limited set of indicators performing less effectively than the LM benchmark.

Robustness Tests

The robustness test results in Table 8, show that none of the quadratic effects of POR, PRA, PCP, PS, or FC on Behavioral Intention (BI) are statistically significant, as all p-values exceed 0.05. This indicates that the relationships remain essentially linear and are not influenced by non-linear distortions. Hence, the findings confirm the stability of the model and reinforce that quadratic effects do not alter the main conclusions.

Table 8: Quadratic Effects Analysis

Path	Original Sample (O)	Mean (M)	STDEV	t-Statistic	p-Value
QE(POR) → BI	0.021	0.009	0.056	0.380	.704
QE(PRA) → BI	-0.077	-0.059	0.062	1.245	.213
QE(PCP) → BI	0.054	0.049	0.042	1.271	.204
QE(PS) → BI	0.036	0.027	0.049	0.742	.458
QE(FC) → BI	-0.021	-0.014	0.054	0.386	.700

Source: Smart PLS 4.1.1.1

Table 9: Gaussian Copula Results

Path	Original Sample (O)	Mean (M)	STDEV	t-Statistic	p-Value
GC(POR) → BI	0.126	0.114	0.143	0.878	.380
GC(PRA) → BI	-0.227	-0.224	0.237	0.960	.337
GC(PCP) → BI	0.274	0.205	0.183	1.500	.134
GC(PS) → BI	0.224	0.104	0.363	0.618	.537
GC(FC) → BI	-0.158	-0.161	0.223	0.708	.479

Source: Smart PLS 4.1.1.1

The Gaussian Copula test results in Table 9, indicate that none of the paths (POR, PRA, PCP, PS, FC → BI) show significant p-values, all being greater than 0.05. This confirms that endogeneity is not present in the model, meaning the predictors are not correlated with the error

term. Consequently, the parameter estimates can be considered unbiased and reliable, reinforcing the robustness of the findings. (Vaithilingam et al., 2024).

Discussion

SMEs represent a major driving force in the Bangladeshi economy. Akter et al. (2021) reported that this sector contributes approximately 21% of Bangladesh's GDP. Hassan et al. (2022) noted a 31.42% increase in individual FinTech transactions in 2022 compared to 2020. Despite this growth, the use of digital payments among businesses in Bangladesh remains limited. SMEs continue to face challenges such as high transaction costs and restricted access to streamlined payment systems. These findings highlight the relevance of FinTech adoption for SME operations and the importance of examining the factors influencing this process.

The present study sought to identify the main drivers of FinTech adoption among SMEs. Drawing on established theories of organizational technology adoption, a model was developed incorporating five independent variables: perceived organizational readiness, perceived relative advantage, perceived competitive pressure, perceived security, and facilitating conditions.

The results indicate that facilitating conditions exert minimal influence on SMEs' adoption intentions. This outcome is consistent with Guo (2022), Lv et al. (2024), and Wut and Lee (2022), but contrasts with Hassan et al. (2022), who reported a more positive association. Current evidence suggests that this divergence may be explained by the prevalence of resource-constrained SMEs in Bangladesh, which limits their ability to exploit FinTech effectively (SME Foundation Bangladesh, 2020). Weak internal support systems in such firms hinder their capacity to adapt to digital financial solutions.

Perceived competitive pressure was found to significantly influence adoption intentions, aligning with the findings of Dholakia and Kshetri (2004) and Lin (2014). SMEs in Bangladesh often operate in highly competitive local markets, where industry rivalry and consumer expectations drive innovation and adoption. Competitive pressure thus emerges as a critical external factor shaping SMEs' strategic decisions.

The literature also indicates that perceived organizational readiness and perceived relative advantage play significant roles in FinTech adoption. Studies by Abed (2020), Ezzaouia and Gidumal (2020), Azmi et al. (2018), and Wong et al. (2020) highlight that organizational readiness facilitates successful technology implementation. Firms with a greater propensity to embrace innovations that alter operational processes or provide strategic benefits are more likely to adopt new technologies. Relative advantage, including competitiveness, social status, and value addition, is equally important in SMEs' decision-making processes (Mukherjee et al., 2023; To & Ngai, 2006).

System security was also identified as a significant determinant of adoption intention. Chau et al. (2021) and Palanisamy and Shi (2023) found that secure financial applications enhance user trust. Security concerns extend beyond individuals to organizations, where perceived risks can reduce the likelihood of adoption (Arvidsson, 2014). Emphasizing robust security features is therefore essential for FinTech service providers seeking to build trust among SMEs.

Table 8: Summary of Hypothesis Testing Results

Hypothesis	Statement	Result
H1	Perceived organizational readiness positively impacts intention to adopt FinTech.	Supported
H2	Perceived relative advantage positively impacts intention to adopt FinTech.	Supported
H3	Perceived competitive pressure positively impacts intention to adopt FinTech.	Supported
H4	Perceived security positively impacts intention to adopt FinTech.	Supported
H5	Facilitating conditions positively impact intention to adopt FinTech.	Not Supported

Conclusion

Recent literature highlights that the SME sector in Bangladesh has experienced robust growth, supported by the transformative capabilities of FinTech innovations. FinTech enables SMEs to transition toward cashless payments, expand the use of electronic payment systems and mobile applications, and progressively adopt advanced digital technologies. In developing contexts such as Bangladesh, FinTech has been identified as a valuable tool for automation, enhancing efficiency in business operations. The empirical evidence from this study demonstrates that organizational preparedness, competitive pressure, security factors, and perceived relative advantage are the primary determinants influencing SMEs' intention to adopt FinTech. Conversely, facilitating conditions were found to have no significant effect, possibly due to the lack of clarity among SMEs regarding the infrastructure, digital skills, and internal stakeholder structures required for effective adoption. As a result, many SMEs perceive FinTech services as non-essential.

Theoretical Implications

This study makes several theoretical contributions. First, it emphasizes organizational-level adoption rather than the more commonly explored individual consumer perspective. Its dual focus on SMEs and the organizational context provides a distinctive angle in the FinTech adoption literature. Second, while many prior studies rely on a single theoretical framework, this study integrates constructs from both the TOE framework and the UTAUT. This integrative model offers a novel approach for future research, encouraging scholars to explore multi-theory frameworks in technology adoption studies. Third, the study addresses psychological aspects of behavioral finance, which shape how SME owners and managers perceive FinTech. Statman (2014) highlighted that FinTech intersects with behavioral finance, offering insights beyond traditional finance theories. By incorporating behavioral elements, this research underscores the role of mindset and perception in driving organizational adoption of financial technologies. The empirical results provide useful guidance for scholars and practitioners in designing context-specific and behavior-based adoption strategies.

Practical Implications

This research highlights the need for systematic and purposeful strategic systems to address gaps in structural preparedness. These include support infrastructure, technology access, and digital literacy, alongside strengthening internal organizational systems. Policymakers should prioritize safe, user-friendly, and cost-efficient FinTech solutions specifically tailored to SMEs.

The findings also emphasize the importance of raising awareness of both the advantages and the perceived obstacles to FinTech adoption. Safety concerns and inadequate infrastructure remain key barriers. Service providers must therefore emphasize robust security features and design solutions that are accessible, affordable, and SME-focused. Furthermore, the empirical results underscore the strategic importance of FinTech for SMEs. By investing in information systems that automate financial activities and support customer relations, SMEs can enhance efficiency and competitiveness. In the long run, such adoption can contribute to business growth and sustainability within the SME sector.

Limitations and Suggestions for Future Research

This research also acknowledges several limitations. First, the sample was restricted to SMEs located in Dhaka, the capital of Bangladesh, limiting the generalizability of the findings to other regions. Second, moderating variables such as government funding, perceived risk, trust, financial literacy, and adoption costs were not systematically included. Future research should therefore expand the scope to cover multiple regions and incorporate these additional variables to provide a more comprehensive understanding of FinTech adoption among SMEs.

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Author Contribution Statement: Author 1-3 was responsible for the preparation of all the chapters, including the literature review, research design, data collection, analysis, and interpretation of results. Author 4-6 was research adviser, conceptualized the study, provided overall supervision, guided the research methodology, and reviewed and approved the final manuscript.

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