

FACTORS AFFECTING FINTECH ADOPTION IN BANGLADESH: CENTRAL BANKERS' INSIGHTS

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Abstract

Financial Technology (FinTech) has become a remarkable mechanism for ensuring financial inclusion nowadays. A developing country like Bangladesh can utilize these technological solutions to offer different financial services to attract more people to banking. Therefore, it is essential to understand the key drivers behind FinTech adoption. This study aimed to investigate the specific factors impacting the uptake of FinTech among central bankers in Bangladesh. 241 responses were collected from the central bankers in Bangladesh using a structured questionnaire distributed through Google Forms. This study employed an extended version of the unified theory of acceptance and use of technology (UTAUT) model by incorporating two additional variables: perceived innovativeness (PI) and perceived security (PS). This study employed structured equation modeling (SEM) and confirmatory factor analysis (CFA) to evaluate the hypotheses and assess the reliability and validity of the data. The data was coded and tested for reliability using IBM SPSS version 29. Furthermore, IBM SPSS Amos version 29 was used to build a measurement model and SEM. Findings show that performance expectancy (PE), effort expectancy (EE), and facilitating condition (FC) do not impact the central banker's intention to use FinTech, whereas perceived innovativeness (PI), perceived security (PS), and social influence (SI) have a significant impact on central bankers' decision to use FinTech. This research provides a guideline for the authority of the central bank as well as other banks in Bangladesh to understand what factors could drive their employees to adopt FinTech.

Keywords: FinTech, Technology Adoption, UTAUT, CFA, SEM, Central Bankers.

1. Introduction

The radical advancement of Information Communication Technology (ICT) in every business sector has made a significant transformation known as Industry 4.0. In Industry 4.0, Financial Technology (FinTech) is one of the prominent sectors. FinTech has used technology to transform the mode of many areas of business, including crowdfunding, digital security, insurance, money transactions, investing, and data analysis (Anshari *et al.*, 2020). All over the world, along with conventional

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banks, many ventures have initiated FinTech services and become popular day by day. The remarkable FinTech brands are Monzo (UK), Stripe (US), WeLab (China), Revolut (UK), Lufax (China), Zoono (South Africa), Coinbase (US), Lendingkart (India), and so on (Shakir, 2022). Mobile banking is the most popular type of FinTech in Bangladesh, with various commercial banks and government organizations operating the majority of these services. In Bangladesh, notable instances of mobile financial services encompass Rocket, Islamic Wallet, Nagad, bKash, Upay, and mCash, among others (Islam *et al.*, 2021). However, with the emergence of disruptive innovation in FinTech, the business model of financial services has changed due to the introduction of new technologies, including artificial intelligence, cryptocurrencies, the internet of things, big data, and cloud computing (Elia *et al.*, 2023). Conversely, the Bangladesh government has prioritized financial inclusion to eliminate poverty and attain sustainable economic development (Islam *et al.*, 2021). The National Financial Inclusion Strategy (NFIS) indicates that Bangladesh Bank, the central bank of Bangladesh, has implemented several steps to attain this objective; yet, a substantial portion of the population remains excluded from banking services (Ahmed & Hasan, 2021). As new technology emerges, FinTech can provide these unbanked individuals with convenient financial services from any part of the country. To achieve this, the adoption of FinTech among users should be measured, and new guidelines for improving FinTech services should be prepared. Although the number of studies conducted to investigate the factors of FinTech adoption in Bangladesh is limited, many of them were devoted to identifying the drivers of FinTech adoption from the end users' perspective (Akhter *et al.*, 2020; Ferdaous & Rahman, 2021; Hassan *et al.*, 2024; Sultana *et al.*, 2023; Hasan *et al.*, 2022). For instance, Akhter *et al.* (2020) explored what influences Bangladeshi consumers to adopt mobile banking and discovered that key factors such as perceived usefulness, security, and users' technological skills were instrumental in determining their intentions. Furthermore, according to Hassan *et al.* (2022), patients in Bangladesh were more likely to adopt FinTech services in healthcare when they had access to necessary support and were mainly driven by social influence, ease of use, trust, and their own innovative mindset. However, no effort was made earlier to assess how policymakers perceive the adoption of FinTech in Bangladesh. More specifically, this study focused on exploring the key factors that motivate central bankers to adopt and utilize FinTech. This study's findings will be actionable guidelines for the government and other associated stakeholders regarding the valuable insights for ensuring financial inclusion through FinTech.

1.1 Objectives of the research

By adding two new constructs, personal innovativeness and perceived security, to the UTAUT model, this study aimed to identify the drivers that impact the central bankers' intention to use FinTech. Therefore, the objectives of this study are as follows:

1. To investigate the influence of performance expectancy, effort expectancy, social influence, facilitating conditions, perceived innovativeness, and perceived security on central bankers' behavioural intention to adopt FinTech in Bangladesh, and

2. To understand how the behavioural intention impacts the actual use of FinTech services among central bankers in Bangladesh.

2. Background and literature review

2.1 Definition of FinTech

FinTech refers to the deployment of technology for facilitating the delivery of financial services to customers. More specifically, in order to ensure more cost-effective financial products and ascertain the financial inclusion of diverse customers, financial institutions are innovating new technology-based financial solutions (Lestari & Rahmanto, 2023). John Reed, chairman of Citicorp, first coined the term “FinTech” during the “Smart Card Forum” consortium in the beginning of the 1990s. FinTech typically involves emerging startup enterprises introducing financial innovations to enhance the smoothness and user-friendliness of financial services. However, incumbent financial service providers (banks and insurance companies) are also imparting endless efforts to develop FinTech services to attract customers in this competitive industry (Puschmann, 2017).

2.3 FinTech landscape in Bangladesh

There is a lot of potential for FinTech in Bangladesh because the number of people who use the internet and smartphones is growing quickly (Akhter *et al.*, 2020). Sultana *et al.* (2023) say that in Bangladesh, some important FinTech services are mobile banking, internet banking, agent banking, and digital payments. However, cryptocurrencies and blockchain are not legally recognized. Mobile banking has grown the most in terms of use compared to other FinTech services since it can reach customers in both rural and urban areas more quickly (Mani, 2024). Furthermore, during the COVID-19 pandemic, Mobile Financial Services (MFS) were very important for making payments and sending money because people had to stay away from each other. Mahmud *et al.* (2023) did a study that showed that people are more worried about the safety and privacy of their information when they utilize FinTech. Moreover, users face inadequate support from regulatory bodies and the government when dealing with fraud during their use of FinTech. Financial technologies have made substantial changes in the area of financial services, which escalated the quality of services to its users. The users of financial services in Bangladesh are still in a position where they need to be more ready for this technology. People are, however, included in financial services with the advancement of FinTech in Bangladesh (Islam *et al.*, 2021).

2.4 Research gap

Although some of the studies tried to find out the adoption determinants of FinTech in Bangladesh (Akhter *et al.*, 2020; Ferdaous & Rahman, 2021; Hassan *et al.*, 2024; Sultana *et al.*, 2023; Hasan *et al.*, 2022), no one collected data from the central bankers of Bangladesh. In each study, they made endeavours to take responses from users or other employees of other financial institutions such as commercial banks, non-banking financial institutions (NBFI), agents, or mediators. Central bankers,

however, represent a theoretically distinct adopter group. As regulators, central bankers play crucial to the formulation of FinTech legislation and guidelines. They interact with FinTech from a regulatory, supervisory, and systemic risk perspective, where adoption factors are driven by financial stability, compliance, security, and long-term system resilience and inform sustainable FinTech policy in emerging economies. This research bridges the theoretical gap by extending UTAUT to a regulatory framework which explores FinTech usage among central bankers in Bangladesh.

2.5 Research model and hypotheses development

Based on the UTAUT model (Venkatesh *et al.*, 2003), a research model has been developed for this study. Furthermore, the author extended the UTAUT model by two additional constructs; personal innovativeness and perceived security adapting previous literature (Sultana *et al.*, 2023; Xie *et al.*, 2021). The author has formulated the following conceptual framework for this study reported in Figure 1.

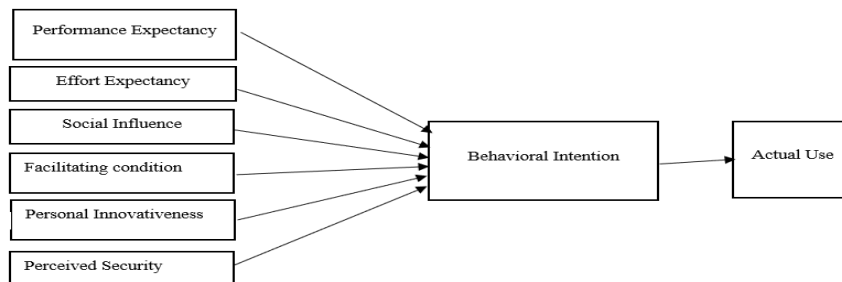


Figure 1: Proposed model
Source: Author's development

2.5.1 Performance Expectancy (PE)

According to Venkatesh *et al.* (2012), PE refers to the extent a user believes that a new technology will boost the possibility of performance in certain activities. Previous research conducted in Bangladesh demonstrates that PE has a prominent impact on behavioural intention of adopting FinTech services among undergraduate students (Sultana *et al.*, 2023). Similarly, it is evident in Malaysia that PE ensures the likeliness of using FinTech among users (Kurniasari *et al.*, 2023). A study done by Arias-Oliva *et al.* (2019) points out that PE is an influential factor in defining users' intention to use digital currency in Spain. Thus, in this study, the author hypothesizes that central bankers intend to use more FinTech if they can find FinTech beneficial to accelerate the performance of their financial activities. Hence, the following hypothesis is suggested:

H₁: PE is significantly related to central bankers' behavioural intention to use FinTech services.

2.5.2 Effort Expectancy (EE)

The term EE refers to the degree of easiness of using a technology for its users (Venkatesh *et al.*, 2012). Acceptance of a new technology is dependent on how

simple and easy to use it is among its end-users, and it is a very crucial determinant in the case of new technology adoption (Hassan *et al.*, 2024). In Bangladesh, FinTech is still in the early stage, though many countries have advanced greatly in this sector. Earlier research on FinTech adoption in Bangladesh demonstrated a strong influence of EE on FinTech adoption in Bangladesh (Sultana *et al.*, 2023). Therefore, the above arguments promote the formulation of the following hypothesis for this study:

H₂: EE is significantly related to central bankers' behavioural intention to use FinTech services.

2.5.3 Social Influence (SI)

SI refers to the extent to which an individual's decision to use a new technology is influenced by the valuable people in their life (Venkatesh *et al.*, 2003). Information systems researchers discovered in their studies that people are motivated to explore new technology influenced by their family members, friends, and near and dear ones. This tendency is also becoming more prominent in this social media era (de Sena Abrahão *et al.*, 2016). Therefore, this study develops the following hypothesis:

H₃: SI is significantly related to central bankers' behavioural intention to use FinTech services.

2.5.4 Facilitating Conditions (FC)

FC refers to the extent to which an individual perceives the availability of organizational and technical infrastructure to facilitate the use of new technology (Venkatesh *et al.*, 2003). A recent study conducted by Hassan *et al.* (2024) showed a strong connection between FC and the user's behaviour intention of FinTech adoption in the insurance industry of Bangladesh. Additionally, FC positively influences mobile banking users' adoption of this technology, similar to the effects of smartphones and the internet (Islam *et al.*, 2019). A similar result was found in Saudi Arabia in the outcome of research conducted on 361 FinTech users in Jeddah (Bajunaied *et al.*, 2023). The above-discussed research findings suggest the following hypothesis:

H₄: FC is significantly related to behaviour intention to use Fintech services among central bankers of Bangladesh.

2.5.5 Personal Innovativeness (PI)

PI means the extent of an individual's eagerness to accept new technology (Lu *et al.*, 2005). This construct originated from technology diffusion theory by Rogers *et al.* (2014). Rogers and Williams (1983) also established that highly innovative individuals are more interested in experimenting with a new technology, which leads them to show a favourable intention toward new technology. Similarly, a person's innovativeness, related knowledge, and experience with a new technology drive their behavioural intention to adopt new technology positively (Dutta *et al.*, 2015). Therefore, the following hypothesis is proposed:

H₅: PI is significantly related to central bankers' behavioural intention to use FinTech services.

2.5.6 Perceived Security (PS)

Perceived security encompasses a threat involving financial difficulties related to data and network resources. These threats could be in various forms of digital misconduct, such as data tampering, denial of service attacks, fraud, and similar activities (Kalakota & Whinston, 1997). Bangladesh Bank, the central bank of Bangladesh, became the victim of a cyberattack by intruders in February 2016, where hackers sent malware to the Bangladesh bank system and the Society for Worldwide Interbank Financial Telecommunication (SWIFT). Eventually, they were able to steal \$951 million in reserves. That incident happened in world history for the first time in a central bank (Bukth & Huda, 2017). After this incident, confirmation of high security has become the prime criterion for central bankers when they attempt to use any new technology. Therefore, PS has been incorporated into our model to align with the current context. Considering the above arguments and context, the author proposes this hypothesis.

H₆: PS is positively related to central bankers' behavioural intention to use FinTech services.

2.5.7 Behavioural Intention (BI)

Inclination to perform an activity is defined as behaviour intention (Ajzen, 1991). In this study, when BI is a dependent variable, independent variables are PE, EE, SI, FC, PS, and PI. On the other hand, BI is the independent variable when actual use (AU) is a dependent variable. Previous literature pointed out that BI correlates with the AU of technology (Hassan *et al.*, 2024). There is an opposite argument as well. BI is reduced when the AU of technology turns into a habit (Cheung & Limayem, 2005). In Bangladesh, FinTech is in an early stage of development. As a result, the following hypothesis is proposed:

H₇: BI is significantly related to central bankers' actual use of FinTech in Bangladesh.

3. Methodology and implementation

3.1 Sample and data collection criteria

The current study targeted the central bankers of Bangladesh as the population of interest. In Bangladesh Bank, there are 5,807 employees in total, of which 3,981 hold official positions, while 1,826 are subordinate staff (Bank, 2024). The total number of participants in this study was 241 employees (officials) of Bangladesh Bank. Data collection took place from 11th July to 4th August 2024. This study retrieved primary data using a survey questionnaire conveyed to the central bankers of Bangladesh and applied the extended UTAUT, which is commonly used in contemporary research on new technology adoption (Bajunaied *et al.*, 2023). Here, participant selection was guided by three criteria: the office location, age, and job designation of the

employees. Bangladesh Bank operates one head office and ten branch offices (Bank, 2024). For this study, a sample was collected from the head office and six branch offices. In addition to this, to meet the research objectives, data were specifically gathered from officers and above designations.

3.2 Questionnaire design

An online survey tool was employed to fulfill the aim of this research. The Google Forms survey questionnaire was divided into four sections. Information regarding the purpose and goals of the research, data confidentiality, data management strategies, length of the project, and participants' right to withdraw data was all included in the first section. This section also included the consent form, which came after the information sheet. In the second section, there were some demographic details related to multiple-choice questions, including their age, gender, job title, and office of employment. A noteworthy inquiry was posed regarding the fintech services that central bankers utilize regularly. Respondents were allowed to select multiple answers simultaneously for this question. The third section focused on 28 items across 8 constructs within the proposed research model, designed to test seven hypotheses represented in Figure 1. The fourth section of the questionnaire provided participants with the option to submit their responses. Before distributing the final questionnaire, a pilot test was performed on fifteen participants to assess feasibility (Williams-McBean, 2019).

3.3 Statistical treatment of data

This research adopted a deductive approach. Based on the extended UTAUT theory, the survey questionnaire was developed through Google Forms, having closed-ended questions. The researcher subsequently shared the Google Forms link with just one employee, who then provided the link to the other employees of the central bank. The central bank's hierarchical structure, confidentiality, and limited access made it impossible to use probability-based random sampling. Convenience and snowball sampling are practical and commonly employed techniques for recruiting specialized regulatory specialists, but they may limit the generalizability of the results (Hair, 2009). Therefore, firstly, convenient sampling was used to make contact with a known employee of the central bank, and then the questionnaire was eventually spread to more participants using the snowball sampling technique. Once the necessary responses were collected, the data were extracted from Google Forms as an Excel file. Then, the dataset was imported into IBM SPSS version 29 and subsequently coded for analysis. After that, descriptive statistics, such as frequency counts and percentages, were computed in SPSS to analyse the demographic characteristics of central bankers in Bangladesh, focusing on variables like age, gender, office location, and designation. Following this, CFA and SEM were carried out using SPSS Amos version 29. To conduct SEM, various researchers have recommended different sample size guidelines. Schikorski and Stevens (1997) proposed that the sample size should be 15 times the number of constructs when performing SEM for data analysis. Hair (2009) also stressed the importance of the

number of items over constructs. He said that the sample size should be at least five times the total number of items and at most ten times the total number of items. In this study, 241 samples were collected, which, given the 8 constructs and 28 items, is adequate for conducting SEM and CFA, thereby meeting the required sample size criteria.

3.4 Selection of measurement constructs and items

All constructs and measurement items utilized in this research were derived from existing literature, as outlined in Appendix 1. PE (4 items), EE (3 items), SI (3 items), and FC (4 items) of the UTAUT model were used in this study. These were based on research by Venkatesh *et al.* (2003). PI (3 items) and PS (4 items) were added to the UTAUT model for extending this model depending on the context and demographic characteristics, with references to earlier studies by Hassan *et al.* (2024) and Lim *et al.* (2019). Apart from this, another two constructs of the UTAUT model, BI (4 items) and actual use (3 items), were adapted from studies by Sultana *et al.* (2023). The items were shown on a five-point Likert scale, with 1 representing "Strongly disagree," 2 "Disagree," 3 "Neutral," 4 "Agree," and 5 "Strongly agree" (Cox & Isham, 1980).

4. Result

4.1 Demographic profile

241 central bankers of Bangladesh submitted their responses to an online questionnaire using Google Forms. All of these responses are considered valid since there were no missing values. Results from the 1 reveal that 78.84% of respondents are male, whereas 21.16% are female. Turning the focus to the designation, the predominant group of respondents comprises Joint Directors, totalling 96 out of 241 respondents, followed by Assistant Director (26.97%), Deputy Director (16.60%), Additional Director (7.47%), and Director (1.66%). Furthermore, the maximum respondents' age is between 26 and 35 years.

Table 1: Respondents demographics details (n=241).

Variable	Description	Frequency	Percentage
Gender	Male	190	78.84%
	Female	51	21.16%
	Others	0	0%
	Total	241	100%
Designation	Officer	18	7.47%
	Assistant Director	65	26.97%
	Deputy Director	40	16.60%
	Joint Director	96	39.83%

	Additional Director	18	7.47%
	Director	4	1.66%
	Total	241	100%
Age	18-25	0	0%
	26-35	134	55.60%
	36-45	94	39%
	46-55	11	4.56%
	56 and above	2	0.84%
	Total	241	100%
	Office Employed	Head office	181
Motijheel		18	7.47%
Chittagong		12	4.99%
Khulna		10	4.15%
Bogra		9	3.73%
Rajshahi		4	1.66%
Sylhet		7	2.90%
Total		241	100%
What types of FinTech service do you use ?	Mobile Banking	228	94.60%
	Online Banking	196	81.30%
	Crowd Funding	7	2.90%
	Agent Banking	47	19.50%
	Digital money/Mobile Payment	175	72.60%
	Investment	20	8.30%
	Research	12	5%
	Digital Payment	148	61.40%

Source: Author's Calculation

It is also evident that among all respondents, no employees were under 25, and only two people were 56 and above. The maximum responses were obtained from the main office, comprising 75.10% of the total respondents. The remaining participants are from various offices of Bangladesh Bank: Motijheel (18), Chittagong (12), Khulna (10), Bogra (9), Rajshahi (4), and Sylhet (7).

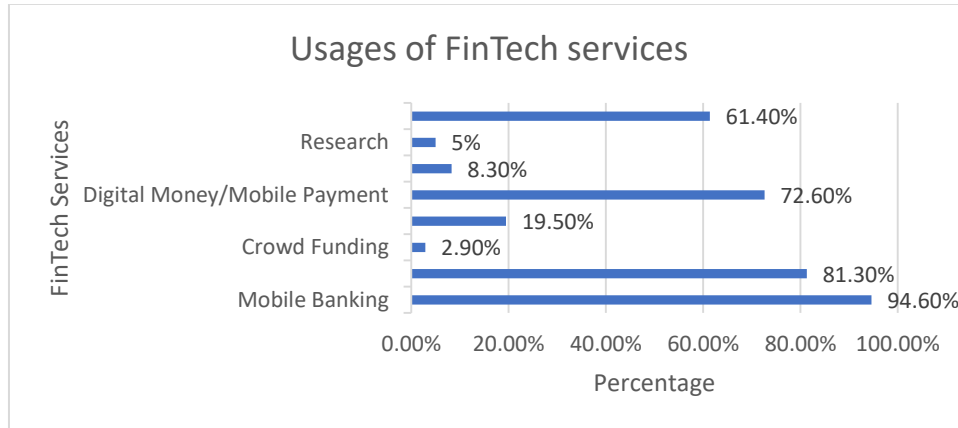


Figure 2: Usages of FinTech services by central bankers of Bangladesh.
Source: Author's Calculation

One question in the survey was about the usage of FinTech services, which allowed respondents to select multiple answers at a time. Figure 2 indicates that mobile banking is the most preferred fintech service among central bankers of Bangladesh, as 94.60% of respondents use this FinTech service. Online banking is also ranked second in preference, with 81.3% of users utilizing it for performing their financial transactions. Other notable FinTech services used by central bankers include digital payment (61.40%), digital money, and mobile payment (72.60%). However, crowdfunding, investment, and research have not drawn much attention from respondents since 2.90%, 8.30%, and 5% of respondents use investment, research, and crowdfunding, respectively.

4.2 Analysis of measurement model

4.2.1 Confirmatory factor analysis (CFA)

This study adopted two-step approaches to identify the relationship among factors of the proposed extended UTAUT model; CFA and SEM (Schumacker & Lomax, 2004). SPSS Amos (version 29) software was utilized to conduct Confirmatory Factor Analysis to calculate the measurement model's fitness. Then, the measurement model's reliability and validity are also assessed using CFA. Finally, SEM was conducted by SPSS Amos to test the hypotheses of the model. In this study, the parameters of the model were estimated using the maximum-likelihood approach. The present study initially carried out CFA (shown in Figure 3) with a total of twenty-eight items. Initially, CFA did not confirm some fit indices according to the recommended value.

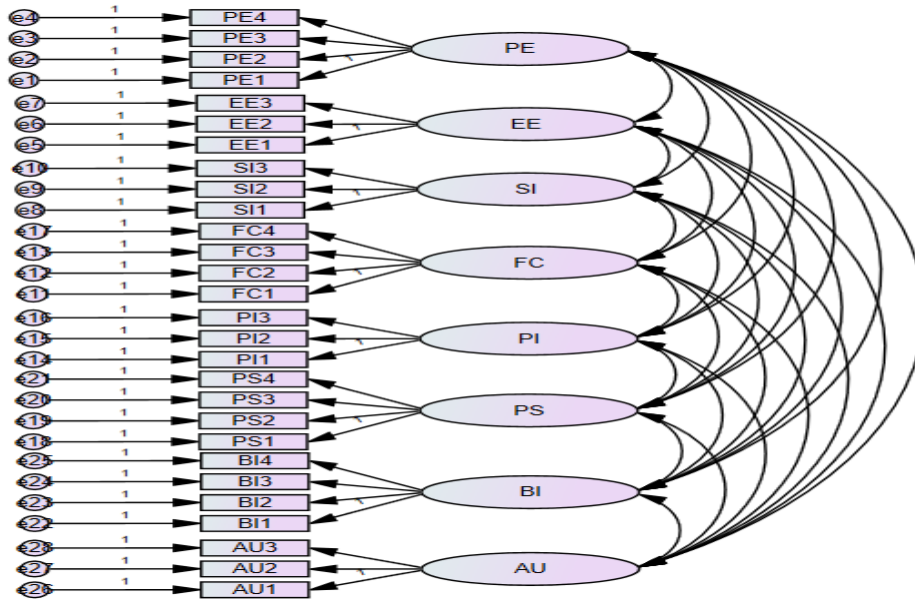


Figure 3: Initial CFA model
Source: Author's Calculation

To ensure model fitness, the author removed two items (FC4, and PS4) from the model due to low factor loading to ensure the model fitness as recommended by Hair *et al.* (2010). During the deletion process, one item was eliminated at a time, and then rechecked the model fitness. During the implementation of this approach, the construct validity of data and model fitness were considered concurrently. Finally, the trade-off between model fitness and data reliability was ensured. Still, some indicators of model fitness were not achieved. Thus, the CFA model was again further modified following the suggestion given by SPSS Amos modification indices, as recommended by Byrne (2013). According to Brown (2015), if there is high covariance between items, the covariance path must be constructed within the same latent construct's items in order to improve the model's fitness. Consequently, covariance lines between e1 to e4 in performance expectancy and e22 to e23, e24 to e25, and e22 to e25 in BI were drawn because of covariance over 8, as shown in Figure 4.

Ultimately, as shows, this process ensured the model indices' good fitness.

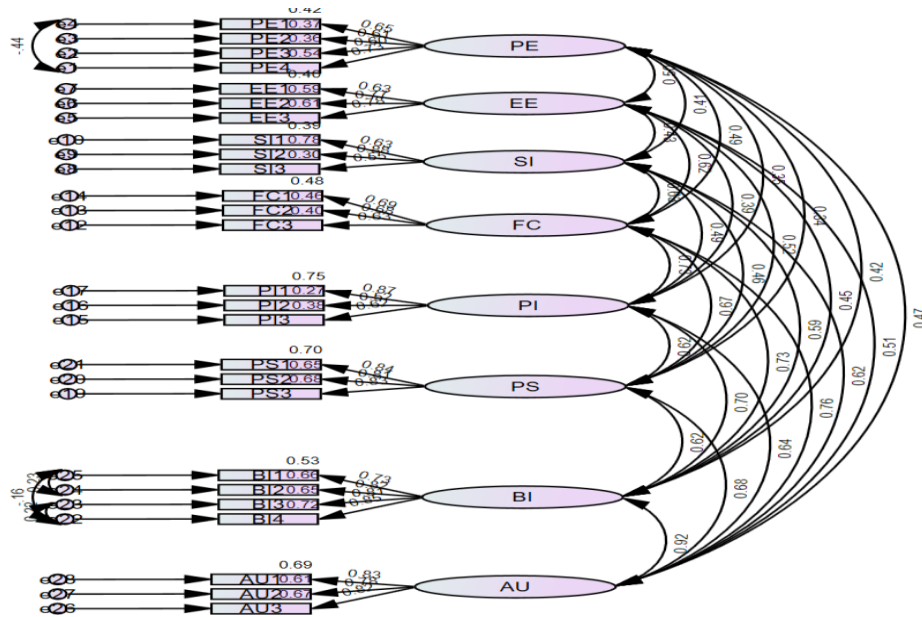


Figure 4: Final CFA model
Source: Author’s Calculation

4.2.2 Reliability test

In order to ensure the internal reliability of the items of a construct, a reliability test was conducted before carrying out SEM. In this regard, Cronbach's Alpha is a widely accepted measure for assessing the reliability of construct (Sultana *et al.*, 2023. As stated by Hair *et al.* (2010), to be considered highly accurate and reliable research constructs, the value of Cronbach's alpha coefficient must be equal to or exceed 0.7. Table 2 exhibits Cronbach's Alpha of all latent variables where all of the construct Cronbach's Alpha value is equal to or greater than .70. As a result, it is confirmed that all of the constructs are reliable for further SEM analysis. One item (PE4) of PS and one item (FC4) of the facilitating conditions were deleted due to low factor loading which eventually increased Cronbach's Alpha.

Table 2: Reliability and validity evidence

Construct	Indicator	Factor loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Performance Expectancy (PE)	PE1	0.65	0.70	0.74	0.42
	PE2	0.61			
	PE3	0.60			
	PE4	0.73			
EE (EE)	EE1	0.63	0.77	0.77	0.53

	EE2	0.77			
	EE3	0.78			
Social Influence (SI)	SI1	0.63	0.72	0.74	0.49
	SI2	0.88			
	SI3	0.55			
Facilitating Condition (FC)	FC1	0.69	0.71	0.71	0.45
	FC2	0.68			
	FC3	0.63			
Personal Innovativeness (PI)	PI1	0.87	0.71	0.72	0.47
	PI2	0.52			
	PI3	0.62			
PS (PS)	PS1	0.84	0.86	0.87	0.68
	PS2	0.81			
	PS3	0.83			
BI (BI)	BI1	0.73	0.88	0.88	0.64
	BI2	0.82			
	BI3	0.81			
	BI4	0.85			
Actual Use (AU)	AU1	0.83	0.85	0.85	0.66
	AU2	0.78			
	AU3	0.82			

Source: Author's Calculation

4.2.3 Convergent validity

This study evaluated the convergent validity measurement to ascertain the construct validity of the proposed research model. Table 2 presents the Composite Reliability (CR) and Average Variance Extracted (AVE). Hair *et al.* (2012) assert that an AVE value exceeding 0.50 is considered acceptable. Additionally, convergent validity is ensured when the AVE exceeds composite reliability, and composite reliability is greater than 0.7 (Hair *et al.*, 2012). The current analysis indicates that the AVE values for EE, PS, BI, and AU exceed 0.50, while the values for PE, SI, PI, and FC fall below 0.50 but remain above 0.40. The construct demonstrates adequate convergent validity when the AVE is below 0.5, provided that the composite reliability exceeds 0.60 (Fornell & Larcker, 1981). The composite reliability of all constructs in this examination exceeds 0.70, surpassing the recommended threshold of 0.60. The CR scores exceed the corresponding AVE values across all eight constructs employed in this study. Thus, the convergent validity of the construct is maintained.

4.2.4 Model fit summary of measurement model

Table 3: Measurement model fit summary

Fit measures	Indices	Model	Recommended value	Sources	Derived fitness
Absolute fit measures	CMIN/DF	1.62	Less than 3	(Bagozzi & Yi, 1988)	fit
	GFI	.88	>.90	(Bagozzi & Yi, 1988)	Moderate fit/Nearly fit
			>.85(Moderate fit)	(Hair <i>et al.</i> , 2010) (Dunn, 2008)	fit
	AGFI	.84	>80	(Chau & Hu, 2001)	fit
	RMSEA	.051	<0.08	(Loehlin, 2004)	fit
Incremental fit measures	NFI	.87	>.80	(Bentler & Bonett, 1980)	fit
	IFI	.95	>.90	(Hair <i>et al.</i> , 2010)	fit
	TLI	.93	>.90	(Hair <i>et al.</i> , 2010)	fit
	CFI	.94	>.90	(Bagozzi & Yi, 1988)	fit
Parsimonious fit measures	PCFI	.78	>.60	(Byrne, 2013)	fit
	PGFI	.67	>.60	(Byrne, 2013)	fit
	PNFI	.71	>.60	(Byrne, 2013)	fit

4.3 Structured equation modeling

Following the validation of a successful measurement model, a structural equation model was employed to examine the significance of the relationships between constructs and eventually test the hypotheses. Hypothesis testing is primarily focused on identifying which independent variables significantly impact explaining the dependent variables (Hair *et al.*, 2006). The SEM was visually constructed and evaluated using SPSS Amos 29, as depicted in Figure 5. In this structural model, for hypotheses H1 to H6, exogenous (independent) constructs are PE, EE, SI, FC, PI, and PS, respectively, and the endogenous (dependent) construct is BI. On the other hand, for hypothesis H7, BI is an exogenous (independent) construct, and AU is an endogenous (dependent) construct, as shown in Figure 5.

4.3.1 Model fit summary of structured model

The SEM of this proposed hypothesis represents a good model fitness as (CMIN/DF = 1.63, CFI = 0.942, GFI = 0.874, AGFI = 0.84, NFI = 0.864, TLI = 0.931, RMSEA = 0.051). All of the indices meet the recommended value of good fit (Bagozzi & Yi, 1988; Bentler & Bonett, 1980; Byrne, 2013; Chau & Hu, 2001; Hair *et al.*, 2010) except GFI, whose value is in the range of moderate fit (Dunn, 2008).

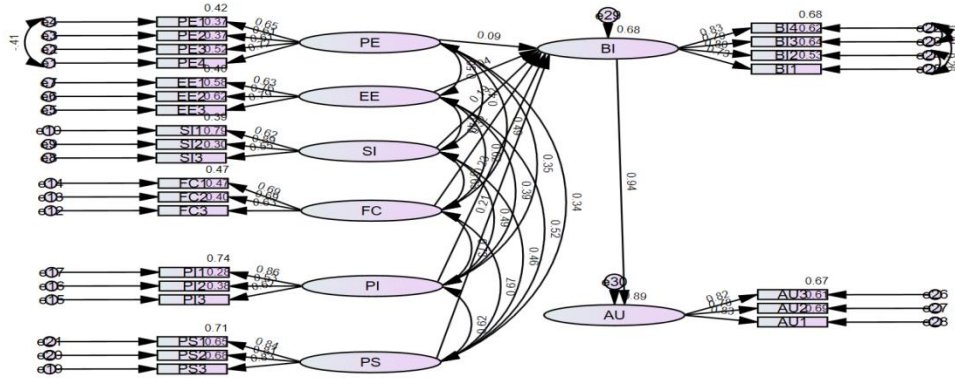


Figure 5: Structural model (SPSS AMOS output)
Source: Author’s Calculation

4.3.2 Hypotheses testing

Table 4 shows the seven hypotheses of the proposed model, standard estimates of path coefficient, p-value, and remark of hypotheses whether they are supported or not supported.

Table 4: SEM hypothesis testing

Hypotheses	Hypothesised path	Standardized path coefficient(Beta)	P value	Remarks
H1	BI ← PE	0.088	0.194	Not supported
H2	BI ← EE	-0.035	0.685	Not supported
H3	BI ← SI	0.186	0.017	Supported
H4	BI ← FC	0.319	0.054	Not supported
H5	BI ← PI	0.226	0.039	Supported
H6	BI ← PS	0.214	0.009	Supported
H7	AU←BI	0.945	***	Supported
Model				R-Square
BI				68%
Actual Use				89%

Note: *** p < .001.

Source: Author’s Calculation

In order to support the hypothesized associations, the standardized path coefficients must demonstrate a significance threshold of $p < 0.05$ (Byrne & St, 2022). So, from Table 4, findings demonstrate that PE has a non-significant impact on BI with a value of $\beta = 0.088$ and $p > 0.05$, thereby not supporting H1 hypotheses. Furthermore, the standardized path coefficient of EE to BI is negative ($\beta = -0.035$) and $p > 0.05$, so

hypothesis H2 is not accepted. Although social influence significantly ($\beta = 0.186$, $p < 0.05$) impacts the BI of central bankers toward the use of FinTech, the evidence was statistically inadequate ($\beta = 0.319$, $p > 0.05$) to demonstrate the impact of facilitating conditions on BIs. Therefore, H3 is supported, but H4 is rejected. The result also reveals that there is a significant relationship between BI and actual use because the β value is 0.945 and the p-value is minimal, which is less than .001. Thus, hypothesis H7 is accepted. Similarly, the results revealed that personal innovativeness and PS significantly influence the BI of central bankers toward the use of FinTech with $\beta = 0.226$, $p < 0.05$ and $\beta = 0.214$, $p < 0.05$, respectively, indicating that hypotheses H5 and H6 are accepted.

R-squares of the BI construct and AU construct are 0.68 and 0.89, respectively. When BI is the dependent variable, the independent variables are PE, EE, SI, FC, PI, and PS. Thus, 68% of the central banker's BI to use FinTech could be explained by six variables: PE, EE, SI, FC, PI, and PS. Furthermore, it can be claimed that 89% of the central banker's actual use of FinTech can be explained by their BI. According to Cohen (2013), a model can be considered as having high exploratory power if it exceeds the R-square value of 0.26, moderate explanatory power if the R-square value is between 0.13 and 0.25, and low explanatory power if the R-square value is 0.12 or lower. Therefore, it is evident that there is a high exploratory power of this model to explain the BI of central bankers toward the use of FinTech in Bangladesh.

5. Discussion

5.1 Discussion of hypotheses result

Findings from this study display that PE did not significantly influence central bankers when they decided to use FinTech. This was also prevalent in prior research conducted by Ferdaous & Rahman (2021), where it was proven that in Bangladeshi households, FinTech adoption was not affected by PE. Although this result is contradictory to results of previous studies (Arias-Oliva *et al.*, 2019; Sultana *et al.*, 2023). However, in this case, personal innovativeness was the most significant determinant. Additionally, PE does not seem to affect central bankers' intention to adopt FinTech. This suggests that central bankers were influenced by their perceived innovativeness over the perceived usefulness of FinTech services. This can happen because of different contexts, cultures, and demographic profiles of customers (Gefen *et al.*, 2003; Slade *et al.*, 2015). Furthermore, EE failed to significantly impact the BI of central bankers to adopt FinTech. Correspondingly, Rahim *et al.* (2023) highlighted that EE had an insignificant effect on Islamic FinTech uptake among Malaysian millennials. Some studies, such as those by Hassan *et al.* (2022) and Hammouri *et al.* (2023), have found results similar to these findings. Usually, ease of use motivates users to adopt FinTech more quickly (Sultana *et al.*, 2023). Similar findings are evident in numerous studies (Gupta & Arora, 2020; Hassan *et al.*, 2024; Bajunaied *et al.*, 2023), which highlighted that ease of use is a significant priority to the customers of financial services, as it ensures minimal effort and user-friendly systems. SI impacts central bankers significantly and positively in adopting FinTech since H3 is accepted in this study. Moreover, users perceive the recommendations

and opinions of others to be noteworthy and rely on them to reduce the perceived risks of using FinTech technologies as recommended by Mbrokoh (2016). Likewise, Yohanes *et al.* (2020) emphasized that establishing a strong reputation for FinTech applications is critical for increasing customer referrals. Bajunaied *et al.* (2023) found that in Saudi Arabia, users of FinTech were not influenced by the others around them. This analysis reveals that FC was no longer a significant factor in the BI of central bankers regarding FinTech adoption. This claim is further reinforced by a multitude of studies conducted within the realm of financial technology (Ferdaous & Rahman, 2021). The findings of this study suggest that the availability of devices and infrastructure does not affect FinTech adoption within the central bank. This could be because Bangladesh Bank has sufficient internet connectivity and IT infrastructure, leading central bankers to prioritize other factors over FC when using FinTech. Contrary findings were common in several previous studies (Alkhwaldi *et al.*, 2022; Bajunaied *et al.*, 2023; Gupta & Arora, 2020; Khatun & Tamanna, 2020) where FC was found to be a critical factor for FinTech adoption. The findings of this study reveal that personal innovativeness was the strongest determinant of users' BI to adopt FinTech, prompting central bankers to embrace new financial innovations as early adopters. This result was also consistent with prior studies by Dutta *et al.* (2015) and Hassan *et al.* (2022). However, it is noteworthy that, in contrast, personal innovativeness did not significantly impact the decision of Bangladeshi undergraduate students to adopt FinTech, as highlighted in a recent study by Sultana *et al.* (2023). This divergence underscores the varied role that personal innovativeness plays in different contexts and among different demographic groups. According to the findings, PS stands out as the second most crucial factor influencing central bankers' decisions to adopt FinTech. Several prior investigations have validated the findings of this research concerning PS (Akhter *et al.*, 2020; Ali *et al.*, 2021; Chiu *et al.*, 2017). Laksamana *et al.* (2022) emphasized that PS is crucial in shaping customer attitudes toward adopting financial technology. They also argued that FinTech companies must ensure the security of financial information and safeguard the confidentiality of personal data. This need arises because online financial transactions are more vulnerable to security risks than offline ones (Kamalul Ariffin *et al.*, 2018). For central bankers, the PS of FinTech is a remarkable priority. This is because they are both knowledgeable users and regulators of FinTech, and they have a deep understanding of the risks associated with these technologies, unlike the general public. However, some studies have presented conflicting results as well (Hu *et al.*, 2019; Islam & Khan, 2021). Similarly, Hassan *et al.* (2022) found that in Bangladesh, PS concerns regarding mobile banking are relatively low, mainly due to a lack of awareness about the associated risks with these FinTech services. This analysis also demonstrated that there was a significant impact of the BI of central bankers on determining the AU of Fintech in Bangladesh. Thus, the probability of engaging with financial technology has a favourable effect on its actual utilization. This happens because a positive attitude and BI toward FinTech can foster user loyalty and turn it into actual usage patterns. Earlier studies have drawn similar conclusions (Hassan *et al.*, 2024; Khatun & Tamanna, 2020; Sultana *et al.*, 2023).

According to Teshome & Sharma (2024), when consumers are willing to engage in a specific behaviour of using a variety of automated financial solutions such as mobile banking, internet banking, digital payments, and so on, it will eventually affect their AU of FinTech.

6. Conclusion

By employing the extended UTAUT model, the objective of the present study was to examine the factors that influence the BI of central bankers in Bangladesh. Findings of this research indicate that central bankers' intentions to adopt FinTech are significantly influenced by PI, PS, and SI. However, the decision to go with FinTech wasn't influenced by PE, EE, or FC. Additionally, it was observed that the actual use of FinTech in Bangladesh was significantly influenced by BI.

6.1 Practical implication of the study

This study delivers essential guidelines for the new FinTech startup companies about which factors they should consider during the development of FinTech services. Central bankers are working from a regulatory point of view of the banking sector, and with their intense experience working in this sector, they understand the limitations and strong points in this sector. Furthermore, they handle different complaints from customers and settle those disputes. So, having insights regarding FinTech from them is very powerful and practical. So, this study's findings are crucial to making impactful decisions regarding FinTech. Additionally, other commercial bank employers also acquire a way to assess their employees' intention to utilize FinTech. Most importantly, top officials of Bangladesh Bank can have guidelines about the important factors when they intend to implement new FinTech in their office.

6.2 Theoretical implication of the study

PI and PS showed high significance for the determination of fintech use among central bankers rather than SI, which had a substantial influence on their decision to accept financial technology. So, this is a real implication of this research that, for educated and privileged organizational employees, these two constructs could be incorporated into the UTAUT model in future studies when evaluating the factors influencing the adoption of technological solutions.

6.3 Limitation of the study

This study only considered the BI of the central bankers of Bangladesh toward fintech adoption in Bangladesh; it would be more insightful if any comparative study between several developing countries' central bankers' opinions could be captured. Furthermore, mixed approaches were not implemented in this study due to time constraints. It would have been possible to obtain more organized suggestions for how to advance fintech in Bangladesh if a focus group discussion had been organized. The sample size of this study satisfies the minimum threshold, which could be increased in future research to have more robust results. Due to restricted

access to the central bankers, convenience and snowball sampling were utilized in this study, which led to biased hierarchical regulatory sampling. To overcome this limitation, in future research, random or stratified sampling may be used if institutional access improves. Additionally, although composite reliability was satisfactory, AVE values below 0.50 for some constructs indicate potential limitations in convergent validity that warrant cautious interpretation of the results.

6.4 Future research directions

This study focused on a specific time frame of data. In future studies, longitudinal data could be collected over several years to understand the factors that impact the adoption of fintech in Bangladesh over time. Thus, a comparative study among different years can be conducted, and therefore decisions can be made according to changes in central bankers' perception year to year toward fintech adoption. Moreover, some mediating factors like age, educational quality, experience, and hedonic motivation can be accounted for when trying to find out which factors impact the central bankers' use of Fintech in Bangladesh. Finally, other variables like perceived trust and financial literacy can be taken into account as independent variables to define the BI of any technological solution acceptance.

Encapsulating all the discussion elaborated above, it is evident that all of the research objectives of this investigation have been accomplished and provide comprehensive information for policymakers, new entrepreneurs, and regulatory bodies on how to ensure better FinTech services in Bangladesh.

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