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Research article

Examining factors that boost intention and loyalty to use Fintech post-COVID-19 lockdown as a new normal behavior

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ABSTRACT

This study predicts factors affecting the tendency to use financial technology (Fintech) services post-COVID-19 lockdown as a new normal behavior. Fintech services have boosted the number of users during the COVID-19 lockdown. However, to maintain the loyal behavior of consumers after usage, firms need to predict key reasons to enhance their intention to use the service and maintain current consumers in the long term. This study offers a model to assess the components of the perceived usefulness toward Fintech. Data were collected via Mechanical Turk (MTurk), and structural equation modeling was used to predict the factors that influence the intention and loyalty to use Fintech post-COVID-19 lockdown. The findings reveal that the COVID-19 lockdown, trust, data security and privacy, and especially staff services are factors that enhance the intention to use through perceived usefulness. In return, it builds consumers' loyalty toward Fintech services and is considered a new normal behavior. This research sheds light on how Fintech firms develop their capabilities and increase their competitive advantages. Both theoretical and practical implications are also discussed.

1. Introduction

Fintech technology (Fintech) is an emerging innovation in the financial industry, driven in part by the era of Industry 4.0. Internet availability and mobile communication have become indispensable in modern life, making the US a huge market for digital financial services. Fintech includes checking bank balances, making payments, and performing account transactions (Tiwari and Kartika, 2019). According to Forbes, consumer utilization of finance apps grew 71% in 2019(Salz, 2020). In 2018, the US Fintech market was $18, and Fintech start-ups have recently boomed (Kauflin, 2020). Internet financial service users are going mobile, and most banks and other financial services are competing to gain a large number of users (Fisher, 2001; Lee et al., 2012). During lockdown due to COVID-19, shops and borders have closed and Fintech has accelerated at a rapid speed (Talwar et al., 2020), creating a significant opportunity for Fintech firms.

Previous research has examined how consumers adopt Fintech and mainly focus on perspectives including perceived risk, data security (Fernando and Touriano, 2018; Lim et al., 2019), perceived ease of use, perceived usefulness (Chuang et al., 2016; Das, 2019; Fu and Mishra, 2020a; Kauflin, 2020; Salz, 2020; Wang and Chang, 2018), and perspectives on interaction (Gimpel et al., 2018). Consumers have recognized the benefits of Fintech, such as low-cost transaction fees and highly effective solutions (Saksonova and Kuzmina-Merlino, 2017); thus, it encourages the intention to use technology-based financial services (Chuang et al., 2016; Lim et al., 2019; Ryu, 2018). Fintech increases the self-efficacy of both financial organizations and consumers in reducing time wasted on traveling and paperwork (Ashta and Biot-Paquerot, 2018; Das, 2019), and saving costs by cooperating (Lootsma, 2017). However, the situation has significantly changed; under normal circumstances, consumers still prefer to go out for shopping and use financial services face-to-face (Scarpi et al., 2014). Due to lockdown, all transactions need to be transferred online, and Fintech services have become a key tool to maintain smooth and easy transactions. However, previous studies have not assessed the influence of the COVID-19 lockdown on the significantly changing behavior of users or consumers.

Furthermore, in a lockdown state that has been ongoing for a year, users realize how useful Fintech services are in maintaining a normal life. Users may become familiar with the convenience of this service and continue to use it post-COVID-19. Fintech services are becoming competitive in maintaining existing customers and attracting new ones. It is essential to determine the characteristics that affect the perceived usefulness, which can predict a user's intention to adopt Fintech, as well as increase the competitive advantage. Thus, this study identifies the

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critical factors that impact the perceived usefulness toward Fintech services during the COVID-19 lockdown, which indirectly influences the intention to use the service during and after the pandemic.

In addition, the consequences of using Fintech services have not yet been determined. If consumers feel satisfied with the service, they tend to keep using it for a long time, or become loyal (Kumar et al., 2018). This study assessed the loyalty of users as a consequence of having good financial service experiences during a forced situation, that is, the COVID-19 lockdown. The findings may shed light on users' positive behaviors toward the use of Fintech services. In addition, this study assesses the impact of the difference in computer literacy on adopting financial technology services. The future tendency to use Fintech during and after COVID-19 was also assessed.

2. The technology acceptance model

The theory of reasoned action (TRA) (Vance et al., 2008; Fishbein 1980) suggests that people form intentions to adopt a behavior or technology based on their beliefs about the consequences of adoption. TRA has been used to understand the adoption of behaviors, technologies, or advice. Building on TRA, Davis et al. (1989a) developed the technology acceptance model (TAM). TAM attempts to explain why individuals choose to adopt a particular technology when performing a task (Davis et al., 1989a). These two theories are valuable for assessing the usefulness of technology (Davis et al., 1989b). The TAM explains the relationship between behavioral intention that predicts a user's acceptance of information technology (Chuang et al., 2016). TAM posits that if a technology or innovation enhances a person's performance, it is considered useful, and the person will be more likely to adopt the technology, service, or behavior. The results of numerous studies have supported the validity and reliability of the perceived usefulness and perceived ease of use variables in the TAM (Wallace and Sheetz, 2014).

Fintech refers to companies that use technology to make financial services more efficient (Puschmann, 2017). This study applied TAM and TRA to explain users' behavior toward Fintech while benefiting from the usefulness of the service during lockdown. The COVID-19 lockdown has forced most people to purchase products and services through financial technology. This study explored the Fintech experiences of users during a lockdown. Users tend to be familiar and interested in a service with trust, privacy, and administration services. Perceived usefulness refers to the degree to which an individual believes that using a particular technology enhances performance (Davis, 1989). With positive feedback and experience, users may become loyal to Fintech services.

3. Hypotheses

3.1. The impact of COVID-19 lockdown, trust, data security and privacy, QAS, and perceived usefulness toward Fintech

The ongoing COVID-19 pandemic has already impacted almost everyone across the globe; everyone needs to stay at home and shops have closed due to government policy. Despite these measures, individuals need to purchase products and use services for their essential requirements, work, and entertainment (Wójcik and Ioannou, 2020). The growing field of Fintech and the different financial paradigms and technologies will be boosted by COVID-19 (Das, 2019). The spread of COVID-19 and related government lockdowns has led to a 24%–32% increase in the relative rate of daily downloads of Fintech service applications. Users must use digital financial services due to COVID-19 lockdown and gradually perceive the usefulness of Fintech in their daily lives (Fu and Mishra, 2020a). Consumers tend to adopt digital finance and Fintech during Covid-19 to purchase products or services (Fu and Mishra, 2020a). Perceived usefulness explains users' belief that the new technology is useful and results in better performance (Moon and Kim, 2001; Venkatesh and Davis, 2000). We therefore formulate the following hypothesis.

H1. The impact of COVID-19 lockdown has a positive impact on perceived usefulness toward Fintech.

Trust refers to the belief in the services or reputation of a business (Lewis and Weigert, 1985). Trust in digital financial services includes confidentiality, availability, and transaction security (Hansen et al., 2018; Siau and Shen, 2003; Vance et al., 2008). It plays a vital role in shaping the adoption of Fintech services (Gefen, 2000; Joubert and Van Belle, 2013; Malaquias and Hwang, 2016; Wu et al., 2016) and enhancing customer attitudes in the context of mobile applications (Mahatanankoon et al., 2005). Customers recognize perceived usefulness when they trust the data security, privacy, and quality of service. The importance of consumer trust and technological tools of Fintech services is a widely studied TAM belief (Chuang et al., 2016; Vance et al., 2008). When consumers received useful assistance, it can increase their trust in the system quality. Specifically, Fintech and are the key concerns when transactions occur online without human connection (Singh and Sinha, 2020). Thus, in the context of Fintech service adoption, trust is one of the first points in customers' minds. We therefore formulate the following hypothesis.

H2. Trust has a positive impact on perceived usefulness toward Fintech.

Data security and privacy are one of the key elements for consumers to adopt a digital financial service (Chang et al., 2016). By downloading and installing apps, smartphone users increase the risks associated with design flaws, malware attacks, and data theft. Users are concerned their personal and bank account information would be leaked or stolen (Noor et al., 2019). Large amounts of money have been stolen due to information leakage or the lack of protection for financial systems (Byrnes, 2020; Yang et al., 2018). Despite the apprehension many users express, the number of mobile app downloads worldwide increases continuously (Statista, 2019). Data security and privacy of Fintech services are the key elements for users to believe in and choose the service (Barth et al., 2019). Users require Fintech to be more transparent about collecting data on their online behavior. Protecting data security is indirectly part of the reputation of the services and increases the competitive advantage. When the user realizes a higher level of data security protection, security control mechanisms, and/or their procedures, Fintech services are provided stably, and users' expectations will be satisfied. If customers feel their confidential information is protected, this will increase their desire to continue using the service (Hu et al., 2019; Stewart and Jürjens, 2018). Thus, Fintech services with highly secure data security and privacy systems definitely attract the trust of users and retain customers in the long term. We therefore formulate the following hypothesis.

H3. Data security and privacy have a positive impact on perceived usefulness toward Fintech.

Quality of administrative services (QAS) means services pertaining to contract, subcontract management, online transactions, sovling problems and other similar services. While most online transactions are based on the technology systems, quality of administrative services (QAS) is a human-connected method. Therefore, QAS represents bank credibility or brand image (Chuang et al., 2016). When there are issues with online transactions such as fraud, incorrect amount, and so on, users need to stop the transactions as soon as possible; QAS is the first way users will connect. If users face difficulty or have bad experiences with these services, they will become disappointed and seek alternatives (Hu et al., 2019; Razzaque et al., 2020). E-admin services include both artificial intelligence and staff services. Using an on-line chat conversation via text or text-to-speech to answer customer questions during 24/7 service allows companies to respond to consumer enquires quickly (Belanche et al., 2019). E-admin services such as chatbots, call-to-action on apps or websites, or online chat services should be available (Jang et al., 2021). In addition, online customer staffs should be continuously trained to ensure high-quality services such as advanced knowledge and expertise that can solve problems quickly (Chuang et al., 2016). In returns, consumers perceive the usefulness of Fintech services and increase the opportunity to use fintech in

the future (Kim et al., 2016). Therefore, the QAS can enhance the usefulness of Fintech. We therefore formulate the following hypothesis.

H4. Quality administrative services have a positive impact on perceived usefulness toward Fintech.

The operational definition of perceived usefulness is the belief in the degree of helpfulness of using the Fintech service (Davis, 1989). The list of attributes of perceived usefulness was selected from the scale developed by Davis (1989). Fintech services bring benefits to everyone, for example, increasing completion of work tasks, reducing travel time, and reducing excess paperwork (Chuang et al., 2016; Lee et al., 2019). Recognizing the usefulness of Fintech, especially during the COVID-19 lockdown, will help users realize the importance of such services (Billore and Billore, 2020). Usefulness includes many factors, such as usability, the ability to secure the information, and satisfaction with the quality of service. Covid-19 lockdown is an opportunity for people to use Fintech services without having to promote many marketing activities. Users stay at home, but can still use online financial transactions effectively, quickly, easily, and safely (Huei et al., 2018; Jiwasiddi et al., 2019). This makes users feel more clearly the usefulness of Fintech. It will increase the opportunity for users to continue using Fintech after Covid-19 because of the usefulness of this service (Revathy and Balaji, 2020). We therefore formulated the following hypothesis (see Figure 1).

H5. Perceived usefulness toward Fintech positively impacts intention to adopt Fintech.

H6. Intention to adopt Fintech positively influences loyalty to use Fintech.

3.3. The impact of computer literacy skills in multigroups on intention to adopt Fintech

Computer literacy skills moderate the perceived usefulness toward Fintech, a technology service (Rauniar et al., 2014; Ryu, 2018; Talwar et al., 2020). If consumers are highly skilled in technology, it will be easier for them to adopt new technology services, and may even enhance enthusiasm for using high-tech tools (Fain and Roberts, 1997). Meanwhile, consumers who are not highly skilled tend to resist using high-tech services, and are loyal to using cash transactions (Tapia, 2004). The current study explored the different influences of computer literacy on Fintech adoption among groups. In addition, this study measured the difference in intention to use Fintech post-COVID-19 lockdown by comparing it with that during COVID-19 lockdown. The research model is illustrated in Figure, in that control variable is computer literacy, and this study asess computer literacy skills impact intention to adopt Fintech.

4. Research methodology

4.1. Data collection

We developed an open-ended survey via Google Forms and administered it on Amazon Mechanical Turk (MTurk) in June 2020. Subjects were those who were over 18, residing in the US, and frequently used Fintech. The US is one of the countries facing a severe situation during the COVID-19 pandemic, and citizens have been forced to lockdown at home. Sample characteristics and data screening were assessed to ensure the quality of the data. Participants were asked to answer two screening questions about whether they use Fintech and whether they purchase online during the COVID-19 lockdown. If they answered "Yes," they would move to the next section. The participants answered all questions about in one to three minutes.

Data from 247 respondents were used to test the proposed model, with an effective rate of 94.4%. Of these, two respondents were eliminated as they used the wrong MTurk ID. This study has six latent independent variables pointing to one latent dependent variable. Following the 10 times rule, the minimum sample size for PLS-SEM should be 60. There should be at least 10 cases per measured variable for (1) the number of indicators in the largest latent factor block, or (2) the largest number of incoming causal arrows for any latent variable in the model (Hair et al., 2016). The demographic features of the respondents are reported in Table 1. The data include more women

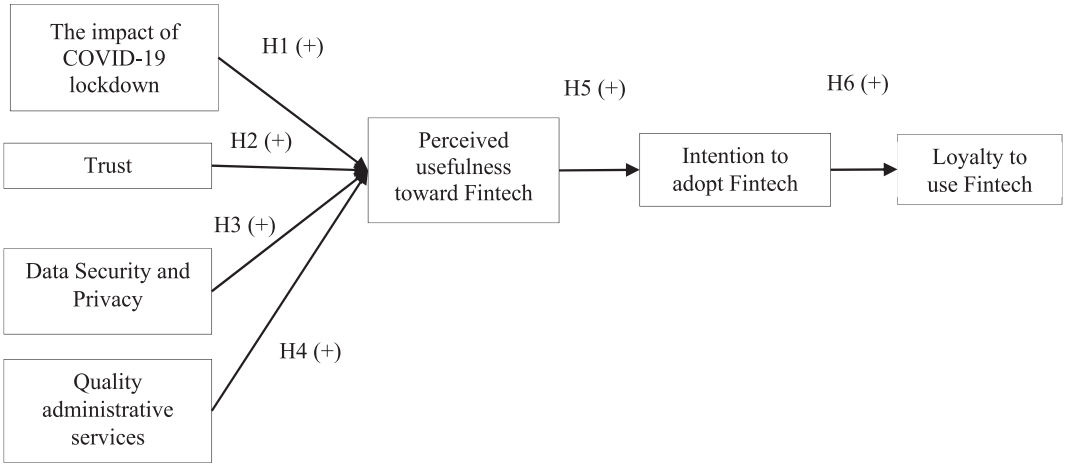

Figure 1. The research model.

3.2. Intention to adopt Fintech

Loyalty now includes online services, and online loyalty extends the traditional concept of brand loyalty to consumers' online behavior (Corstjens and Lal, 2000). E-loyalty refers to repeat visiting behavior and repurchase of products or reuse of services in the future (Anderson and Srinivasan, 2003; Larsson, 2018). In the scope of this study, user loyalty refers to Fintech customers, such as using apps or online services after a good user experience, manifested through repeated purchase intentions and behaviors at the same bank and positive word of mouth. In terms of intentional loyalty, the determinants of online customer loyalty include product quality (Aisyah, 2018), interactivity and service quality (Gefen, 2000; Larsson and Viitaoja, 2017; Toufaily et al., 2013; Yen and Lu, 2008), and trust in services (Ponnavolu, 2001; Shin, 2010). The data security of online services can increase the loyalty toward Fintech (Tarafdar and Zhang, 2008; Yun and Good, 2007). Fintech experience can affect customer loyalty toward Fintech service providers (Anderson et al., 2014; Wang and Chang, 2018). When users spend their time using, they can easily make their own conclusions on the quality and convenience of the service (Jung and Shin, 2019). We therefore formulate the following hypothesis.

(69.5%) than men (30.5%), most (61.94%) were under 35, and the majority had a higher level of education (65.8%). In terms of occupation categories, professionals (48.2%) accounted for the highest proportion, followed by white collar workers (19.8%). The frequency of Fintech use was 39.8%, followed by "often" (31.7%). Frequency of using Fintech was determined by asking participants about their intention to use the service during and post-COVID-19 lockdown. The comparison between the two points confirms the potential market for Fintech firms.

4.2. Procedure development

The construct items use those from previous research on Fintech services. The scale items are measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) (see Table 2).

Trust is evaluated using five items adapted from Stewart and Jürjens (2018). The alpha coefficient for trust is 0.780.

Data privacy and security are evaluated using four items adapted from Stewart and Jürjens (2018). The alpha coefficient for data privacy and data security is 0.752.

QAS is evaluated using six items adapted from Russell-Bennett et al. (2007). The coefficient alpha is 0.728.

The impact of COVID-19 lockdown is evaluated using five items adapted from Baker et al. (2020). The coefficient alpha is 0.827.

Perceived usefulness toward Fintech is evaluated using four items adopted from Davis et al. (1989a). The alpha coefficient is 0.768.

The intention to adopt Fintech is evaluated using five items adapted from Chuang et al. (2016). The alpha coefficient is 0.792.

Loyalty to use Fintech is evaluated by four items adapted from Anderson and Srinivasan (2003).The alpha coefficient is 0.743.

5. Analysis and results

5.1. Measurement model

Data collected from the same source may lead to a potential common method variance. We used Harman's single-factor tests to examine this type of bias (Podsakoff, 2003). The results indicate five factors with eigenvalues larger than one, and the first factor accounts for 35.790% of the total variance. The results suggest that common method bias is not a concern for the data.

Next, to assess convergent validity, three items with low factor loadings (below 0.50) were dropped from further analysis (Gerbing and Anderson, 1992). The fit statistic is 653.558 with 356 degrees of freedom ($\chi 2/df = 1482$) ($p < 0.001$). The root mean square error of approximation (RMSEA) is $0.044 < 0.08$, the comparative fit index (CFI) is $0.926 > 0.800$, the normed fit index (NFI) is $0.805 > 0.800$, and the Tucker-Lewis coefficient TLI (rho2) is $0.917 > 0.800$ (see Figure 2).

Discriminant validity was checked for the correlation of each construct with other factors (Fornell and Larcker, 1981). QAS and data security and privacy have a high correlation ($\Phi = 0.733$, $\Phi^2 = 0.533$), and the variance extracted estimates are 0.566 and 0.533, respectively, suggesting adequate discriminant validity (see Table 3).

5.2. Structural model

The maximum likelihood is used to assess the fit parameters. The model shows good fit with the data ($\chi 2/df = 2.147$, CFI = 0.818, TLI = 0.804, RMSEA = 0.068, $p < 0.01$) (Hair et al., 2014). The index shows a goodness-of-fit index (GFI) of 0.90, and the Bentler and Bonett (1980) normed fit index (NFI) shows a goodness-of-fit index (GFI) of 0.90.

The impact of COVID-19 lockdown, trust, data security and privacy, and QAS have high squared multiple correlations (SMCs; R^2). Nearly half of the variance (SMC = 0.495) in perceived usefulness toward Fintech is explained by the direct impact of COVID-19 lockdown, trust, data security and privacy, and QAS. For the intention to adopt Fintech (SMC = 0.347), a proportion of the variance is explained by the direct effects of perceived usefulness toward Fintech. For loyalty to use Fintech (SMC = 0.67), the variance is explained by the direct effects of the intention to adopt Fintech. The standardized parameter estimates are presented in Table 4.

H1–H4 show the structural relationships among the impact of COVID-19 lockdown, trust, data security and privacy, and QAS in terms of perceived usefulness. In detail, the impact of COVID-19 lockdown, trust, data security and privacy, and QAS have a positive effect on perceived usefulness toward Fintech ($\beta_{Covid\text{-}19} = 0.205$, t-value$_{covid\text{-}19} = 2.883$; $\beta_{trust} = 0.289$, t-value$_{trust} = 3.493$; $\beta_{SP} = 0.205$, t-value$_{SP} = 2.883$; $\beta_{ASQ} = 0.205$, t-value$_{ASQ} = 2.883$), and all are statistically significant at the $p < 0.001$ level, supporting H1, H2, H3, and H4 (see Table 4).

H5 posits that perceived usefulness toward Fintech is positively associated with the intention to adopt Fintech. As expected, perceived usefulness toward Fintech significantly affects the intention to adopt Fintech ($\beta = 0.592$, t-value = 11.977, $p < 0.001$), supporting H5. Intention to adopt Fintech has a considerable positive influence on loyalty to use Fintech ($\beta = 0.733$, t-value = 21.546) and is statistically significant at the $p < 0.001$ level, supporting H6.

5.3. Multigroup test of computer literacy skills

To assess whether level of computer skills impacts using Fintech service, a multigroup analysis (Justwan et al. (2018) was performed for differences in how the variables were related between the groups by running the previous estimation for the subsamples of each computer skill level. The differences between high and low literacy can be observed in Table 6 through the comparison of each PLS model for each category. Regarding the intention to use Fintech, there was no difference between computer literacy levels (see Table 5).

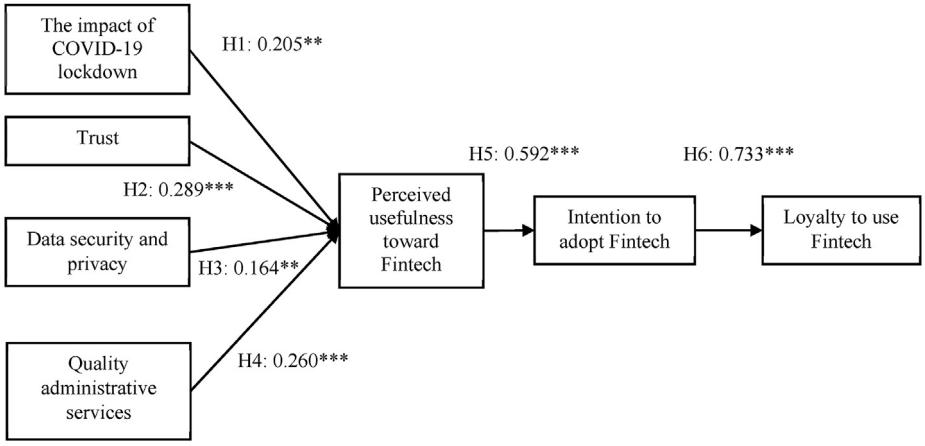

Figure 2. The results of the research model.

5.4. Intention to adopt Fintech during and post-Covid-19 lockdown

In terms of the impact of COVID-19 lockdown on intention to adopt Fintech, and keep using it later, a dependent t-test is used to check the difference between two points to predict the tendency (Hair et al., 2014). Respondents were asked about their intention to adopt Fintech during and post-COVID-19 lockdown. The paired-mean differences of these two answers were computed to predict user behavior. The dependent t-test between intention to adopt Fintech during and post lockdown was $t(248) = -7.690$, $p < 0.0005$. We can conclude that there was a significant increase in the use of Fintech services 1.98 to 2.54 ($p < 0.0005$); an improvement of 0.56 (see Table 6).

6. Discussion

Focusing on TAM theory and Fintech adoption, this study sheds light on using Fintech post-COVID-19 lockdown post-COVID-19 lockdown by adding the impact of COVID-19 lockdown factor and the loyalty to use Fintech. While previous research focused on privacy and administrative services that influence the perceived usefulness of Fintech, our study sheds light on how positive experience using Fintech during lockdown significantly boosts intention to continue using the services post lockdown. Realizing that the usefulness, safety, security, and good administrative services when using Fintech during the Covid-19 lockdown are the factors affecting the intention to use Fintech. In which, trust is the most influential factor ($\beta = 0.289$), followed by the quality of administrative services ($\beta = .260$), the impact of COVID-19 lockdown ($\beta = 0.205$), and data security and privacy ($\beta = 0.164$). Using Fintech with the cumulative contribution of the above four factors can lead to user loyalty, and users will continue to use the service after the Covid-19 epidemic. The new normal behavior will be established (Gnan and Masciandaro, 2016), and both scholars and managers are predicting this type of behavior to develop suitable strategies.

6.1. Theoretical implication

This study proved that the COVID-19 impact increases the perceived usefulness toward Fintech in terms of social distance and convenience, thus enhancing the intention to use this service (Chuang et al., 2016; Davis et al., 1989b; Ryu, 2018; Saksonova and Kuzmina-Merlino, 2017; Stewart and Jürjens, 2018). The results indicate data security and privacy, trust, and high-technology tools are factors leading consumers to adopt Fintech. The present research examines the impact of the COVID-19 lockdown on using Fintech services, as well as predicts the potential future for Fintech firms to catch up with the increasing tendency. In addition, data security and privacy and QAS have significant effects on the perceived usefulness toward Fintech, supporting the findings of previous research on the TAM model (Chuang et al., 2016; Kang, 2018; Stewart and Jürjens, 2018).

In addition, this study finds that quality administrative staffs play a vital role in maintaining current users. This study emphasizes the crucial position of humans, even in high-technology areas. It indirectly enhances the intention service, that is, the degree of loyalty. Specifically, the findings add to the knowledge on how technology services can build up and nurture current consumers to be loyal toward Fintech services (Chuang et al., 2016; Davis et al., 1989b). Consequently, a high level of attention should be paid to increasing the QAS in the system.

Next, the study examined the extended factors influencing the perceived usefulness of Fintech, enhancing the intention to use the service (Stewart and Jürjens, 2018). The theory of planned behavior was added to perceived usefulness as an antecedent in adopting Fintech services. Results reveal that four factors (COVID-19 lockdown impact, security and privacy, trust, and QAS) significantly affect and contribute to perceived usefulness, increasing the intention to adopt Fintech post-COVID-19 lockdown. This study added COVID-19 lockdown as an update factor that encourages consumers to use Fintech services rather than a normal process development. It extends the impact of COVID-19 lockdown as a situational impact, but presents a leverage opportunity to boost the improvement of Fintech services and perceived usefulness.

Table 1. Descriptive statistics for users' groups.

Demographics		N = 247	%
Gender	Male	76	30.50%
	Female	173	69.50%
Age	<35	153	61.94%
	36–55	80	32.38%
	Over 55	16	6.48%
Education	Primary school	0	0%
	High school	19	7.60%
	Undergraduate	164	65.9%
	Postgraduate	66	26.5%
Occupation	Students	3	1.20%
	Service industry proprietors	38	15.40%
	Professionals	119	48.20%
	White collars	49	19.80%
	Homemakers	11	4.50%
	Unemployment	3	1.20%
	Others	24	9.70%
Fintech Usage Frequency	Frequently	79	31.70%
	Often	99	39.80%
	Sometimes	67	26.90%
	Rarely	4	1.60%
Computer literacy skills	Basic	7	2.80%
	Intermediate	50	20.24%
	Advanced	130	52.63%
	Expert	60	24.29%

Table 2. Measurement model resulting from confirmation factor analysis.

Constructs and variables	Standardized factor loadings	Cronbach alpha	AVE
Trust		0.780	0.787
This Fintech services is trustworthy.	0.652		
This Fintech service is reputable.	0.688		
This Fintech service makes honest claims.	0.566		
This Fintech service has a long-lasting nature.	0.579		
Wherever I go, this Fintech service is present.	0.572		
Data security and privacy		0.752	0.759
I trust in the technology of a Fintech service is using.	0.730		
I trust in the ability of a Fintech service to protect my privacy.	0.662		
I trust in a Fintech service as a bank.	0.745		
Using a Fintech service is financially secure.	0.734		
I am not worried about the security of a Fintech service.	0.664		
When a Fintech service promises to do something by a certain time, it does so.	0.730		
Quality administrative services		0.728	0.732
Administrators of Fintech services show the confidence in customers.	0.795		
I feel safe in my transactions with Fintech services.	0.741		
Administrators of Fintech services are consistently courteous with me.	0.671		
Administrators of Fintech services have the knowledge to answer my questions.	0.760		
The impact of COVID-19 lockdown		0.827	0.830
I need to purchase online due to Covid19 lockdown.	0.750		
I use Fintech service to purchase online during Covid19 lockdown.	0.799		
I use e-commerce platforms to buy things I need due to covid19 lockdown.	0.784		
I use original products website to buy things I need due to covid19 lockdown.	0.747		
I need to use Fintech service when using online purchasing platforms during Covid19 lockdown.	0.761		
Perceived usefulness toward Fintech		0.768	0.773
Using Fintech service helps me online purchasing more quickly	0.759		
Using Fintech service enhances my online purchasing effectiveness.	0.756		
Using Fintech service makes it easier to do my online purchasing	0.736		
Overall, using Fintech service is useful.	0.818		
Intention to adopt Fintech		0.792	0.794
I intend to use Fintech services.	0.788		
I predict I will use Fintech services	0.719		
I plan to use Fintech services.	0.714		
I will strongly recommend using Fintech services to others.	0.754		
If I have access to Fintech services, I want to use it as much as possible.	0.715		
Loyalty to use Fintech		0.743	0.746
I will say positive word-of-mouth about Fintech service.	0.791		
I will recommend Fintech service to others	0.743		
I will encourage others to use Fintech service.	0.740		
Fintech service is the first choice to pay for future.	0.733		

Notes: AVE: Average variance extracted.

Users will become loyal to Fintech services because of the usefulness of this service that they have been adopted due to the mandatory condition of the Covid-19 lockdown. That usefulness comes from factors that have been shown by this research to be reliability, service quality, and safety and security. Thus, Covid-19 is a good lever to access Fintech services, helping users realize the usefulness of the service. Users use the

Table 3. Construct reliability and validity.

	CR	CI	IAF	LUF	PU	SP	QAS	TR
CI	0.878	0.768						
IAF	0.857	0.534	0.739					
LUF	0.839	0.508	0.733	0.752				
PU	0.852	0.509	0.592	0.610	0.768			
SP	0.834	0.413	0.606	0.536	0.589	0.708		
QAS	0.831	0.446	0.530	0.571	0.610	0.648	0.743	
TR	0.850	0.415	0.577	0.569	0.608	0.594	0.527	0.730

Notes: CR: Composite Reliability; QAS: Quality Administrative Services; CI: The impact of COVID-19 lockdown; IAF: Intention to adopt Fintech; LUF: Loyalty to use Fintech; PU: Perceived usefulness toward Fintech; SP: Data security and privacy; TR: trust.

Table 4. Analysis of competing structural models.

Hypotheses	Path	Path coefficients sample estimates	T-statistic (C.R)	p-value	Results
H1	The impact of COVID-19 lockdown → Perceived usefulness toward Fintech	0.205	2.882	0.004	Approved
H2	Trust → Perceived usefulness toward Fintech	0.289	3.493	0.000	Approved
H3	Data security and privacy → Perceived usefulness toward Fintech	0.164	2.155	0.0031	Approved
H4	Quality Administrative Services → Perceived usefulness toward Fintech	0.260	3.888	0.0000	Approved
H5	Perceived usefulness toward Fintech → Intention to adopt Fintech	0.592	11.977	0.000	Approved
H6	Intention to adopt Fintech → Loyalty to use Fintech	0.733	21.546	0.000	Approved
	R^2				
	Perceived usefulness toward Fintech 0.527 (52.7%)				
	Intention to adopt Fintech 0.348 (34.8%)				
	Loyalty to use Fintech 0.537 (53.7%)				

Table 5. Path coefficient and p-values of multi-group analysis between High computer literacy and Low computer literacy.

	β-diff (|Advanced - Expert |)	p-Value (Advanced vs Expert)	β-diff (|Advanced - Intermediate |)	p-Value (Advanced vs Intermediate)	β-diff (|Expert - Intermediate |)	p-Value (Expert vs Intermediate)
CI → PU	0.135	0.218	0.138	0.194	0.003	0.465
IAF → LUF	0.089	0.930	0.093	0.195	0.182	0.033
PU → IAF	0.036	0.646	0.071	0.308	0.107	0.226
SP → PU	0.118	0.769	0.165	0.775	0.047	0.565
QAS → PU	0.220	0.098	0.033	0.446	0.187	0.802
TR → PU	0.266	0.901	0.028	0.568	0.238	0.137

Notes: QAS: Quality Administrative Services; CI: The impact of COVID-19 lockdown; IAF: Intention to adopt Fintech; LUF: Loyalty to use Fintech; PU: Perceived usefulness toward Fintech; SP: Data security and privacy; TR: Trust.

Table 6. Paired samples statistics of using Fintech during and post Covid-19 lockdown.

	Paired Differences		t	df	Sig. (2-tailed)
	Mean	Std. D			
During Covid-19 lockdown - Post Covid-19 lockdown	-.558	1.145	-7.690	248	.000

service and become loyal to it, as long as the above factors are still guaranteed and maintained as expected. The findings show no difference in the impact of using Fintech services across computer skill levels. It means that there is no limit on computer skills in applying Fintech. It creates more opportunities for services to attract new users without any barrier to computer skills.

6.2. Practical implications

In terms of practical implications, the findings suggest that the trend of using services will increase sharply. COVID-19 lockdown forces consumers to use Fintech services as a convenient tool to shop and conduct tasks in relation to finance from home. Combining trust, data security and privacy, and QAS satisfies user expectations. This study predicts increasing demand for Fintech post-COVID; firms should prepare technology infrastructure and minimize network issues. Satisfaction will engage consumers with the service and enhance their trust. Continued improvement of services will lead users to perceive Fintech as an indispensable service in the future. Managers should maintain the quality of services and expand transaction utilities, such as connecting with more brands or services to build shopping networks.

Managers should arrange frequent staff training programs to meet consumers' requirements with financial online services. In addition, managers should regularly update the software to ensure that the customer database is secure and protected. When consumers consumers feel trust in term so the use of their private information and staff services, they will continue to use and become loyal to the service. Managers should focus advertising on data security and privacy of their services, which is the key element for the user to trust in selecting the service to use in the long term. Previous customer relationship studies in marketing indicate that trust leads to loyalty, reusing services, and willingness to pay a higher price (Larsson and Viitaoja, 2017). Satisfaction creates a positive connection between the service and users, and, in return, it develops loyalty. Managers should conduct Fintech service audits on the quality of services, user satisfaction, and loyalty. A short online survey with rewards is one method to quickly collect information on users' experiences. This would provide an overview of customers' perceptions, as well as the expectations regarding new services that customers want. The results support managers in determining more suitable policies to enhance consumer loyalty.

6.3. Limitations and future research

This study has some limitations that can provide fruitful future research. First, the data were collected only in the US, which has a specific culture. This creates a limitation regarding its cross-cultural nature and economic contexts. In the future, research should be conducted in different cultures and economies (both developing and developed countries) to enhance generalizability in consumer-brand relationships. In the current study, the ratio of women to men is 2:1, which indicates that the findings may be related to women's ideas. To increase the representativeness of ideas, future research should ensure a balanced ratio between males and females.

Second, this is a cross-sectional study conducted at a specific point in time; however, the Fintech services-user relationship is dynamic. Future research could use longitudinal methods to investigate changes in the consumer-brand relationship over time (Kohn and Rosman, 1972) and capture updated trends in real time. Future research may choose several

specific Fintech services and make comparisons among them to determine the special features of each service that can create a competitive advantage (Ryabova, 2015).

We have changed to a so-called new normal and need to accept an unpredictable situation in the health system. In addition, the development of the cashless era will be more significant due to the impact of COVID-19 lockdown. On the contrary, Fintech services have had a very good opportunity to develop, maintain a positive experience, and acquire loyal customers. In the future, Fintech services will prosper. Enterprises need to learn more about users' online activities and habits to make the most suitable decisions to adapt to consumers' needs.

Declarations

Author contribution statement

Minh T.H. Le: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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The data that has been used is confidential.

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The authors declare no conflict of interest.

Additional information

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