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Factors affecting customers' adoption of fintech in the gulf cooperation council countries

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ABSTRACT

This study examines the factors affecting customers' adoption of fintech in the Gulf Cooperation Council (GCC) countries. Based on fintech adoption models, a conceptual framework was developed and extended to include COVID-19 situational influences. Data were collected during the spread of COVID-19 and its subsequent variants. The sample comprises 484 customers who obtained financial services in the GCC countries. Hypotheses were tested using partial least squares structural equation modeling (PLS-SEM). The findings indicate that perceived usefulness, perceived ease of use, trust, and situational influences of COVID-19 have significantly affected customers' attitudes toward the use of fintech. Furthermore, such attitudes had a significant effect on customers' intentions to use fintech. The findings also indicate that both perceived usefulness and the situational influences of COVID-19 have had significant direct and indirect effects on customers' intentions to use fintech. Social influences have only directly affected customers' intentions to use fintech, both perceived ease of use and trust have only indirectly affected the customers' intentions to use fintech. Conversely, the findings show that social influence does not affect customers' attitudes towards using fintech. This study provides several recommendations to financial institutions in the GCC Countries.

Contribution/Originality: This study combines technology acceptance model (TAM) dimensions and unified theory of acceptance and use of technology (UTAUT) dimensions with the situational influences of COVID-19 to examine the factors that affect customers' adoption of fintech in Gulf Cooperation Council (GCC) countries.

1. INTRODUCTION

Digital transformation has played an essential role in changing the way that financial institutions provide products and services, especially with customers' increasing desire to obtain these services more quickly, at a low cost and a high value. To satisfy existing customers, attract new ones, and keep pace with technological development,

financial institutions around the world have started to provide many of their services through financial technology (fintech) (Nangin, Barus, & Wahyoedi, 2020).

The use of fintech has led to customers obtaining services quickly and at a low cost, which resulted in their acceptance of fintech and an increase in their demand for these services, especially if they trust these services. Although fintech has proven to be beneficial, customers may have concerns about information security and privacy due to some security incidents that were discovered in the last decade (Chaudhry, Paquibut, & Tunio, 2021).

The use of fintech may be safer from a health perspective in the case of the spread of epidemics. During the COVID-19 period and the application of rules regarding social distancing, the need for customers to obtain financial services separately from the service provider increased (Vasenska et al., 2021). Therefore, central banks around the world in general, and in the Gulf Cooperation Council countries, encouraged financial institutions to provide services to customers in a non-contact way (Rabaa'i, 2021; Rabbani et al., 2021).

This study scrutinizes the impact of trust and COVID-19 situational influences on customers' attitudes and intentions to use fintech in GCC countries. The impact of other variables proposed by the technology acceptance model (TAM) and the unified theory of acceptance and use of technology (UTAUT) was considered.

2. LITERATURE REVIEW

2.1. Fintech and the Financial Sector

Fintech represents the use of financial technology to generate innovative financial solutions (Arner, Barberis, & Buckley, 2015). It is defined as technological innovations that provide applications, products, and business models for the provision of financial services (Le, 2021). This is done through platforms provided by financial institutions, such as mobile wallets, mobile payment, wealth management, capital market, crowdfunding, and others (Firmansyah, Masri, Anshari, & Besar, 2022). Fintech is rapidly developing in the financial sector due to the increasing access to the internet and the use of mobile communications (Al Nawayseh, 2020).

In recent years, the boom in the fintech industry has ensured rapid, simple, low-cost, and high-quality financial services, and the fintech industry has developed a competitive market culture and reputation for service provision. Despite fintech's relative youth, a collaboration between financial institutions and fintech companies has enabled them to readily distinguish, discriminate, and differentiate themselves from their traditional competitors. They have the potential to be the market leaders, particularly in emerging markets, by offering and delivering new and innovative products. Consequently, it is critical that financial institutions use fintech to differentiate themselves (Chaudhry et al., 2021; Firmansyah et al., 2022).

2.2. Fintech Initiatives in GCC Countries

GCC nations are beginning to establish a fintech ecosystem that is based on market access, regulatory support, and financial expertise (Alber & Dabour, 2020). GCC central banks have adopted fintech initiatives since the last decade. The Saudi Central Bank has adopted fintech initiatives since 2018 in what is known as "Saudi Fintech" (Fintech Saudi, 2023). The Central Bank of Bahrain established a dedicated Fintech & Innovation Unit and introduced the "Regulatory Sandbox Framework" in 2017 to support the work of this unit (FinTech & Innovation | CBB, 2023). Dubai has experienced remarkable fintech growth, and fintech startups in Dubai commenced with crowdfunding, payments and other financial transactions. These grew to an extensive small and medium-sized enterprise (SME) and entrepreneurial base (Schilirò, 2021). Other GCC countries have also adopted similar fintech initiatives (Rabaa'i, 2021; Rabbani et al., 2021).

Fintech has helped Saudi Arabian banks to increase the digital transformation in financial initiatives. Saudi Arabia developed strategies for non-cash transactions, and these increased from 36% in 2019 to 70% in 2020 (Zhao & Bacao, 2021). The Qatar Central Bank (QCB) has provided a national strategy as a framework for creating a favorable international fintech ecosystem that businesses can use. The QCB has helped to roll out the Qatar FinTech Hub to

meet customers' increasing requirements to have digital financial apps which are easy to use (Dahdal, Truby, & Botosh, 2020). To overcome COVID-19 restrictions, the Kingdoms of Bahrain and Saudi Arabia combined financial technology initiatives with many financial activities, such as electronic portals and smart applications (Abdeldayem, Aldulaimi, & Aldulaimi, 2020).

The GCC countries are still developing strategic plans to strengthen their entrepreneurial environments. The plans aim to serve as a point of convergence for the rapidly growing fintech space. More specifically, there is a plan to establish a virtual network to connect diverse enterprises, executive educational programs, and a worldwide hackathon series to foster financial institutions' growing development of fintech in all countries (Chaudhry et al., 2021).

2.3. Fintech Adoption During COVID-19 and the Research Gap

Fintech adoption refers to the degree to which users decide to use fintech services and recommend these services to others (Nangin et al., 2020). Many previous studies have examined the factors affecting the adoption of fintech during COVID-19. Some of these studies have relied on TAM factors, originally identified by Davis (1989), into perceived usefulness and perceived ease of use (Hu, Ding, Li, Chen, & Yang, 2019). Some studies have relied on UTAUT factors, originally identified by Venkatesh, Morris, Davis, and Davis (2003), into performance expectancy, effort expectancy, social influence, and facilitating conditions (Al Nawayseh, 2020). Some other studies have relied on self-developed constructs, such as trust (Firmansyah et al., 2022). Al Nawayseh (2020) examined the factors that influence Jordanian people's intentions to utilize fintech applications. He incorporated factors from UTAUT with risk and trust. His findings show that customers' intentions to utilize fintech apps are influenced by their perceptions of their usefulness, social influence, and trust. However, during COVID-19, while perceived risk did not affect customers' intentions to utilize fintech, it did affect their trust in the service. The analysis revealed that customers' faith in fintech moderates the association between perceived risks and propensity to utilize fintech. Therefore, customers are more willing to engage in fintech when perceived usefulness, social value, and trust are high and the perceived risks are low.

Daqar, Constantinovits, Arqawi, and Daragmeh (2021) examined fintech's impact in predicting the spread of COVID-19. They relied on a survey disseminated across multiple countries and answered by 507 consumers who are experienced in fintech. The findings showed that the users' high fintech perception and behavior will reduce the spread of COVID-19 by using contactless payment methods. The findings also showed that banking crisis management and government financial crisis strategies have a bearing on anticipating the propagation of COVID-19. Thus, these factors could predict the spread of COVID-19.

Setiawan, Nugraha, Irawan, Nathan, and Zoltan (2021) investigated the determinants of fintech adoption in Indonesia. Data were collected from 485 fintech users through an online questionnaire, and the findings showed that Indonesia's adoption of fintech is influenced by three factors. In order of importance, these are: users' capacity for innovation, users' attitude toward the adoption of fintech, and financial literacy.

Zhao and Bacao (2021) combined UTAUT and TAM factors with two additional variables, namely trust and perceived security. They aimed to explain how customers' payment habits have altered due to the influence of COVID-19. Their findings demonstrate that performance expectations, perceived usefulness, social influence, trust, and security are the most influential elements of users' intentions to adopt m-payments during COVID-19. Additionally, social influence and trust have significant effects on perceived usefulness, and performance expectancy is influenced by effort expectancy and trust.

Echchabi, Omar, Ayedh, and Sibanda (2021) assessed the situational effect of COVID-19 on the positive attitude toward the use of fintech. Before COVID-19, none of Oman's banks had fintech finance applications. Also, Oman's citizens had no intention of using fintech since they argued that it was not reliable, and Omani businesses were uninterested in fintech firms. However, COVID-19 influenced how Omani businesses and citizens perceived fintech.

In Oman, fintech start-ups have gained practical experience in their development and meeting challenges. COVID-19 forced Oman's financial institutions to adjust their operational measures and policies to be flexible in financing Omani fintech. The pandemic pushed Oman's banks to align its fintech services with the people's desires to use contactless financial services. Omanis' attitudes toward fintech have improved because the technology includes personal banking clients and SMEs.

Fu and Mishra (2022) investigated the impact of COVID-19 on the adoption and use of fintech. Based on a globally representative sample, their findings demonstrate that the proliferation of COVID-19 and associated government lockdowns resulted in considerable increases in the downloads of finance applications, both relative and absolute, per capita. Additionally, the results indicate that, during the period of COVID-19, domestic and conventional incumbents performed exceptionally well, at least in terms of increasing the adoption of their digital solutions compared to "Big Tech" and other fintech providers. The provider-level attributes most strongly associated with the increased adoption of apps place a premium on company history, geographic or cultural proximity, and reliability. The findings demonstrate that apps, which have greater corporate integration into digital payment systems and delivery ecosystems, are better equipped to maintain operations during self- or government-imposed lockdowns.

Nugraha, Setiawan, Nathan, and Fekete-Farkas (2022) explored the fintech adoption determinants for Indonesian SMEs during COVID-19. Their findings showed that usefulness, perceived ease of use, government support, trust, and user creativity have a direct positive effect on SMEs' intentions to adopt fintech. They also revealed that there is an indirect relationship between financial literacy and the adoption of fintech through the mediating role of user innovation.

3. CONCEPTUAL MODEL AND HYPOTHESES

This study examines the factors affecting customers' adoption of fintech in GCC countries. Based on fintech adoption factors, the conceptual model was constructed and extended with COVID-19 situational influences, as shown in Figure 1.

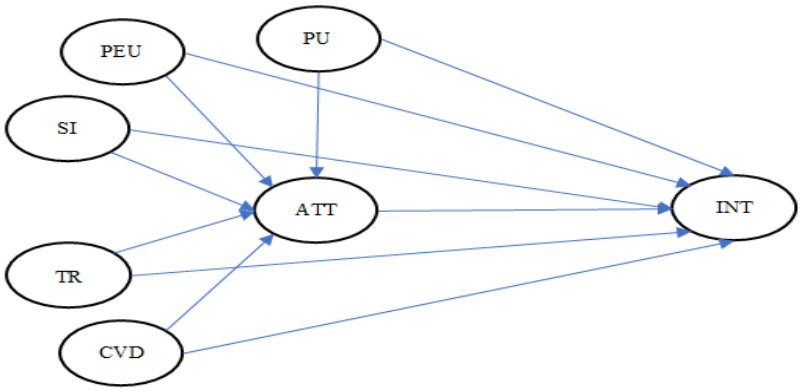

Figure 1. Conceptual model.

3.1. Perceived Usefulness (PU)

Perceived usefulness refers to the extent to which users perceive that the use of financial technology will bring them positive results (Al Nawayseh, 2020). The perceived benefits of fintech are not only financial but also extend to social benefits, which are even more important in the case of COVID-19 as it helps people reduce direct contact financial transactions to reduce the risks of transmission of the virus (Zhao & Bacao, 2021). Previous studies have indicated that perceived usefulness can positively affect users' adoption of fintech (Hu et al., 2019; Zhao & Bacao, 2021). Therefore, the following hypothesis was formulated:

H1a: Perceived usefulness positively affects customers' attitudes toward using fintech.

H1b: Perceived usefulness positively affects customers' intentions to use fintech.

3.2. Perceived Ease of Use (PEU)

Perceived ease of use refers to the extent to which a customer realizes that he or she is not required to spend a lot of time or effort using fintech tools effectively and that they are accessible across many types of devices (Nugraha et al., 2022). Previous studies have indicated a positive effect between perceived ease of use and the adoption of financial technology. When a customer believes that fintech services are convenient, easy to use, and can be accessed from multiple different devices, they have a positive attitude toward adopting it (Zhao & Bacao, 2021). Therefore, the second hypothesis was formulated as follows:

H2a: Perceived ease of use positively affects customers' attitudes toward using fintech.

H2b: Perceived ease of use positively affects customers' intentions to use fintech.

3.3. Social Influence (SI)

Social influence refers to the extent to which an individual is aware that other people of high importance believe that they should use fintech. This is also known as "norms" or "images" (Al Nawayseh, 2020). Zhao and Bacao (2021) indicated that social influence can have a positive impact on users' adoption of fintech, and Schilirò (2021) indicated that social influence has a positive influence on the attitudes associated with the use of fintech. In GCC countries, even if it is not local, social media has made it easier to use certain languages in fintech finance applications. Consequently, if important people publish positive content expressing their willingness to embrace fintech, their followers interact with it very positively (Schilirò, 2021). Therefore, the third hypothesis was formulated as follows:

H3a: Social influences positively affect customers' attitudes toward using fintech.

H3b: Social influences positively affect customers' intentions to use fintech.

3.4. Trust (TR)

Trust is defined as the extent to which the customer is aware that the service provider possesses preventive tools that protect the customer from fraud without having the need or ability to monitor or control the service provider (Al Nawayseh, 2020). Trust is a particularly critical factor when using fintech; after a customer has tried fintech, their continued use depends on building trust (Jena, 2022). According to Nor and Hashim (2020), fintech has influenced conventional crowdfunding using the internet and smartphone applications. On the one hand, platforms have raised funds for different activities, including social initiatives and entrepreneurship, and on the other hand, trust has become a concern that has deterred funders from online platform investment. Previous research has indicated that trust in service providers positively affect users' adoption of fintech (Hu et al., 2019; Zhao & Bacao, 2021). Therefore, the following hypothesis was formulated:

H4a: Trust in fintech positively affects customers' attitudes toward using fintech.

H4b: Trust in fintech positively affects customers' intentions to use fintech.

3.5. Situational Influences of COVID-19 (CVD)

The situational impact of COVID-19 refers to the extent to which customers realized that they must carry out their financial transactions in a contactless manner as much as possible during the crisis to prevent infection compared to their behavior before the crisis. Zhao and Bacao (2021) indicated that users' perceptions will be positively influenced when technology's specific characteristics can benefit from the pandemic. Echchabi et al. (2021) indicated that COVID-19 positively influenced the attitudes of Omani businesses, financial institutions, and citizens toward fintech. Rabaa'i (2021) examined the situational influences of COVID-19 on Kuwait's use of fintech, and the findings show that, in 2018, 15% of Kuwaitis used fintech and approximately 83% of Kuwaitis are now willing to utilize fintech solutions. Therefore, the fifth hypothesis is formulated as follows:

H5a: Situational influences of COVID-19 have had a positive effect on customers' attitudes toward using fintech.

H5b: Situational influences of COVID-19 have had a positive effect on customers' intentions to use fintech.

3.6. Customers' Attitudes Toward Using Fintech (ATT)

Attitude refers to the extent to which a customer believes that using fintech services is a clever idea and the degree to which he or she is interested in those services (Nugraha et al., 2022). The TAM model indicated that a positive attitude toward technology helps its adoption. In the field of financial technology, Hu et al. (2019) indicated that attitudes toward fintech positively affect the intentions to adopt the technology. Therefore, the sixth hypothesis has been formulated as follows:

H6: Customers' attitudes toward using fintech positively affect their intentions to use fintech.

4. METHODOLOGY

The deductive method was used to apply a positivism research philosophy to this study's goals, and the conceptual model (see Figure 1) was built based on the theory. They used a survey approach and a structured questionnaire which was distributed to a sample of 484 individuals. The researchers collected the data for this study over a single period to achieve a cross-sectional design. Hair, Black, Babin, and Anderson (2009) stated that a sample size of more than 200 is sufficient for path analysis. SmartPLS 3.3.3 software was used to perform component-based structural equation modeling (SEM), and the hypotheses were tested using a PLS approach. All the linearity assumptions were met, and this ensured that there were no flaws.

4.1. Measurement

Based on previous studies (Al Nawayseh, 2020; Daqar et al., 2021; Hu et al., 2019; Nguyen et al., 2020; Zhao & Bacao, 2021), we generated a questionnaire to collect primary data for this study. As shown in Appendix A, the questionnaire contains 25 statements divided into seven variables. Perceived usefulness (PU) was measured by four items adopted from Hu et al. (2019); perceived ease of use (PEU) was measured by two items adopted from Hu et al. (2019); social influence (SI) was measured by three items adopted from Al Nawayseh (2020) and Zhao and Bacao (2021); trust (TR) was measured by two items adopted from Hu et al. (2019); attitudes toward the use of fintech (ATT) was measured by four items adopted from Al Nawayseh (2020) and Hu et al. (2019); intentions to use fintech (INT) was measured by three items adopted from Hu et al. (2019); and situational influences of COVID-19 (CVD) was measured by seven items adopted from Daqar et al. (2021) and Nguyen et al. (2020). The researchers asked the participants to rate the degree to which these statements related to them on a five-point Likert scale, ranging from "always" to "never."

4.2. Data Collection

The research community includes customers that use financial services in the GCC countries. Data was collected at the beginning of 2021 during the spread of COVID-19 and its subsequent variants. The researchers obtained 484 responses to the questionnaire that was sent by different means. In this study, the researchers targeted a random sample that included different categories in terms of gender and nature of work to ensure a good representation of the community. Once the responses that came from outside the GCC countries were excluded, the final sample size was 484, which was considered appropriate for this study.

Table 1. Sample demographics.

Category	Country/Gender	Frequency	Percentage
Country	Saudi Arabia	306	63.2
	Kuwait	50	10.3
	United Arab Emirates	36	7.4
	Oman	32	6.6
	Qatar	30	6.2
	Bahrain	30	6.2
Gender	Female	292	60.3
	Male	192	39.7

Table 1 shows the sample distribution in the Gulf Cooperation Council countries along with the demographic characteristics.

5. RESULTS

Through using the SmartPLS 3.3.3 software, the researchers performed component-based SEM by using the PLS technique to analyze the data. The analysis was carried out in three steps according to Anderson and Gerbing (1988), who first performed data purification; second, to guarantee the validity and reliability of the construct, they assessed the measurement model; and third, they assessed the SEM to ensure that it was appropriate for testing the theories. The following are the specifics of these three steps.

5.1. Data Cleansing

Table 2 shows that the standard deviation (SD) values are less than 2, which indicates that approximately 95% of the data is normal. Similarly, the skewness data falls within the range of 1 and -1, which shows that there are no skewness issues. Finally, the kurtosis values fall between the desirable range of 3 and -3. Consequently, no issues with data normality were observed, and the data is strong enough for additional statistical analysis.

Table 2. Composite normality (N = 484).

Variable code	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
PEU	1.00	5.00	4.262	0.878	-0.138	0.944
PU	1.00	5.00	4.569	0.697	-0.953	2.935
SI	1.00	5.00	4.327	0.816	-0.054	0.619
TR	1.00	5.00	4.232	0.872	-0.186	1.244
CVD	1.00	5.00	4.402	0.828	-0.472	2.059
ATT	1.00	5.00	4.483	0.763	-0.547	2.347
INT	1.00	5.00	4.488	0.728	-0.284	1.045

5.2. Measurement Model

The measurement model (see Figure 2) depicts the relationships between the latent variables and their measurement items. It also illustrates the predicted correlations between these variables.

To ensure that the measurement model indicators accurately reflect their latent variables, and that the questions fulfill the validity requirements, we employed convergent validity, discriminant validity, and goodness of fit (Hair et al., 2009; Henseler & Statistics, 2013). Table 3 lists the convergent validity indicators.

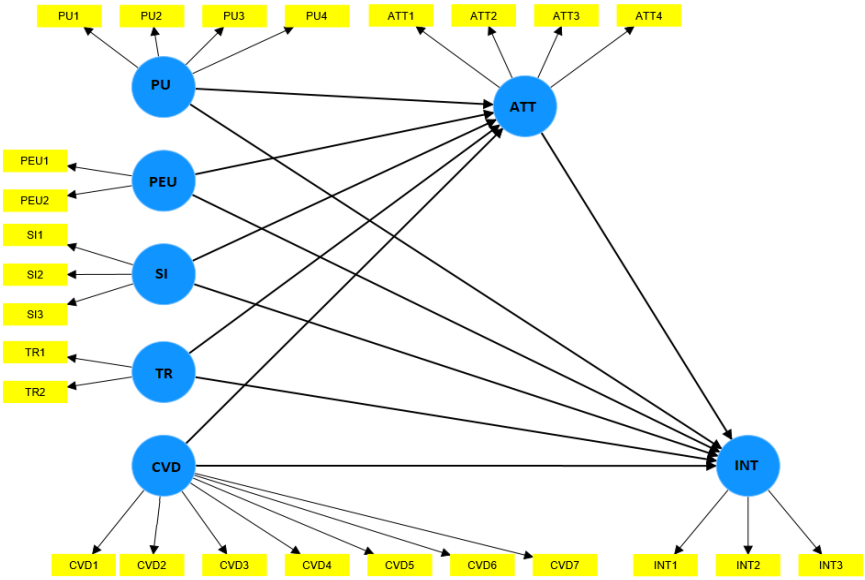

Figure 2. The measurement model.

Table 3. Convergent validity indicators.

Indicator/Item	Measurement type	Loading/weight	Composite reliability (CR)	Cronbach's alpha	Average variance extracted (AVE)
PU					
PU1	Reflective	0.842	0.904	0.859	0.703
PU2		0.866			
PU3		0.774			
PU4		0.868			
PEU					
PEU1	Reflective	0.887	0.864	0.686	0.760
PEU2		0.856			
SI					
SI1	Reflective	0.850	0.907		
SI2		0.880		0.847	0.766
SI3		0.895			
TR					
TR1	Reflective	0.908	0.918	0.823	0.849
TR2		0.934			
CVD					
CVD1	Reflective	0.740	0.893		
CVD2		0.721			
CVD3		0.689			
CVD4		0.723		0.864	0.545
CVD5		0.805			
CVD6		0.755			
CVD7		0.731			
ATT					
ATT1	Reflective	0.806	0.885		
ATT2		0.852		0.826	0.657
ATT3		0.811			
ATT4		0.773			
INT					
INT1	Reflective	0.876	0.916		
INT2		0.882		0.862	0.784
INT3		0.899			

Table 4 demonstrates that all reflective index loads are higher than the required cutoff threshold of 0.60 (Bagozzi & Yi, 1988). For all reflective combinations, the composite reliability ratings are higher than the advised threshold value of 0.70 (Hair et al., 2009). In addition, the AVEs are above the required amount of 0.50 per project (Fornell & Larcker, 1981), and the Cronbach's alpha readings are between the permissible limits of 0.7 and 1. Therefore, the convergent validity analysis produced appropriate results.

To ensure that each construct was unique from other constructions, a discriminant analysis was conducted (Bollen & Lennox, 1991; Petter, Straub, & Rai, 2007). According to Fornell and Larcker (1981), the AVE value of any construct should be higher than its connection with other constructs. As shown in Table 4, all diagonal values in each column are greater than the other values, meaning that discriminant validity is supported.

Table 4. Discriminant validity results according to the Fornell–Larcker criterion.

Variable code	ATT	INT	PEU	PU	CVD	SI	TR
ATT	0.811						
INT	0.676	0.885					
PEU	0.525	0.433	0.872				
PU	0.756	0.647	0.531	0.838			
CVD	0.536	0.548	0.335	0.547	0.739		
SI	0.483	0.541	0.568	0.520	0.373	0.875	
TR	0.536	0.408	0.447	0.444	0.293	0.484	0.921

Additionally, Henseler and Statistics (2013) suggested using the heterotrait-monotrait ratio (HTMT) to examine the discriminant validity of the components (Hair, Risher, Sarstedt, & Ringle, 2019) since high HTMT levels are

problematic. The threshold value for comparable constructions is 0.9, whereas the threshold value for unique constructs is 0.85. As shown in Table 5, all HTMT readings are below the threshold value.

Table 5. Discriminant validity results according to the heterotrait-monotrait ratio (HTMT) values.

Variable code	ATT	INT	PEU	PU	CVD	SI
INT	0.802					
PEU	0.696	0.561				
PU	0.892	0.748	0.691			
CVD	0.606	0.610	0.420	0.606		
SI	0.576	0.634	0.743	0.606	0.424	
TR	0.648	0.482	0.594	0.521	0.334	0.575

Considering the previous results, we can say that the discriminant validity analysis also produced appropriate results.

Finally, to ensure the fit of the model, a goodness of fit (GoF) was conducted using the following formula:

$$GoF = \sqrt{\left(\overline{R^2} \times \overline{AVE}\right)}$$

The GoF value is 0.645; this indicates that it is a sufficiently large model to have adequate PLS validity, as the value is more than 0.36 (Wetzels, 2009). This means that the model is appropriate for the hypotheses, that the hypotheses are appropriate for the data, and that the overall model is a good fit (Henseler & Statistics, 2013).

5.3. Structural Model

The structural model estimates the regression relationships between the latent variables. Before estimating the structural model, we evaluated the multicollinearity between the constructs with a variance inflation factor (VIF). As shown in Table 6, all the constructs' elements have VIF values less than 5, meaning that no collinearity problems exist (Hair et al., 2019).

Table 6. Variance inflation (VIF) values.

Item	VIF
PU1	2.095
PU2	2.358
PU3	1.706
PU4	2.157
PEU1	1.374
PEU2	1.374
SI1	1.893
SI2	2.101
SI3	2.218
TR1	1.953
TR2	1.953
CVD1	2.173
CVD2	1.994
CVD3	1.810
CVD4	1.898
CVD5	2.038
CVD6	1.783
CVD7	1.642
ATT1	1.739
ATT2	2.079
ATT3	1.811
ATT4	1.542
INT1	2.119
INT2	2.166
INT3	2.338

The structural model's presumptive relationships between the latent variables were analyzed, and the results are summarized in Table 7.

Table 7. Path coefficients of the research hypotheses.

Ind. variable	Hyp.	Relationship	Path coeff.	Indirect effect	Total effect	T- value
PU	H1a	PU -> ATT	0.526**	-	0.527**	9.805
	H1b	PU -> INT	0.184**	0.184**	0.368**	2.100
PEU	H2a	PEU ->ATT	0.104*	-	0.104*	2.300
	H2b	PEU -> INT	-0.041	0.036**	-0.005	0.892
SI	H3a	SI -> ATT	-0.013	-	-0.014	0.335
	H3b	SI -> INT	0.239**	-0.005	0.234**	3.897
TR	H4a	TR -> ATT	0.217**	-	0.217**	4.672
	H4b	TR -> INT	-0.013	0.076**	0.063**	0.269
CVD	H5a	CVD -> ATT	0.154**	-	0.154**	3.990
	H5b	CVD -> INT	0.189**	0.054**	0.243**	3.289
ATT	H6	ATT -> INT	0.349**	-	0.349**	4.728

Note: ** denotes significance at $p < 0.01$ and * denotes significance at $p < 0.05$.
PU = Perceived usefulness; PEU = Perceived ease of use; SI = Social influence; TR = Trust; CVD = Situational influences of COVID-19; ATT = Attitudes toward using fintech.

As shown in Table 7, there are six sets of results, one for each variable.

First, PU has a positive and significant effect on ATT ($\beta = 0.526$; $p < 0.01$), which supports hypothesis H1a. Also, PU has a positive and significant effect on INT ($\beta = 0.368$; $p < 0.01$). This effect contains a direct effect ($\beta = 0.184$; $p < 0.01$) and an indirect effect through attitude ($\beta = 0.184$; $p < 0.01$), which supports hypothesis H1b.

Second, PEU has a positive and significant effect on ATT ($\beta = 0.104$; $p < 0.05$), which supports hypothesis H2a. The direct effect of PEU on INT is not significant ($\beta = -0.041$; $p > 0.05$), but the indirect effect through ATT is significant ($\beta = 0.036$; $p < 0.01$), which partially supports hypothesis H2b.

Third, SI has no significant effect on ATT ($\beta = -0.013$; $p > 0.05$). This result does not support hypothesis H3a. However, SI has a significant positive direct effect on INT ($\beta = 0.239$; $p < 0.01$), but the indirect effect is not significant ($\beta = -0.005$; $p > 0.01$). This result supports hypothesis H3a.

Fourth, TR has a significant positive effect on ATT ($\beta = 0.217$; $p < 0.01$), which supports hypothesis H4a. However, TR has a significant positive indirect effect on INT through attitude ($\beta = 0.076$; $p < 0.01$). The direct effect is not significant ($\beta = -0.013$; $p > 0.01$), so this result does not support hypothesis H4b.

Fifth, CVD has a significant positive effect on ATT ($\beta = 0.154$; $p < 0.01$), which supports hypothesis H5a. Also, CVD has a significant positive and effect on INT ($\beta = 0.243$; $p < 0.01$). This effect contains a direct effect ($\beta = 0.189$; $p < 0.01$) and an indirect effect through attitude ($\beta = 0.054$; $p < 0.01$), which supports hypothesis H5b.

Finally, ATT has a significant positive effect on INT ($\beta = 0.537$; $p < 0.01$) and, therefore, hypothesis H6 is accepted.

The illustrative power of the estimated model can be assessed by observing the R^2 values of the endogenous structures. The R^2 values obtained from the analysis are shown in Table 8.

Table 8. R-squared of the endogenous latent variables.

Variable	R^{2*}	Result
Attitudes toward using fintech (ATT)	0.641	Moderate
Intentions toward using fintech (INT)	0.561	Moderate

Note: * R^2 values over 0.67 are strong; those between 0.33 and 0.67 are moderate; those between 0.19 and 0.33 are weak; and those below 0.19 are unsatisfactory.

Table 8 shows that 64.1% of the variance in ATT is explained by its exogenous variables, the rest of the variance is due to other factors not included in the model. Also, 56.1% of the variance in INT is explained by its exogenous variables, the rest of the variance is due to other factors not included in the model.

According to the previous results, Figure 3 illustrates the structural model of the relationship between the variables in the study.

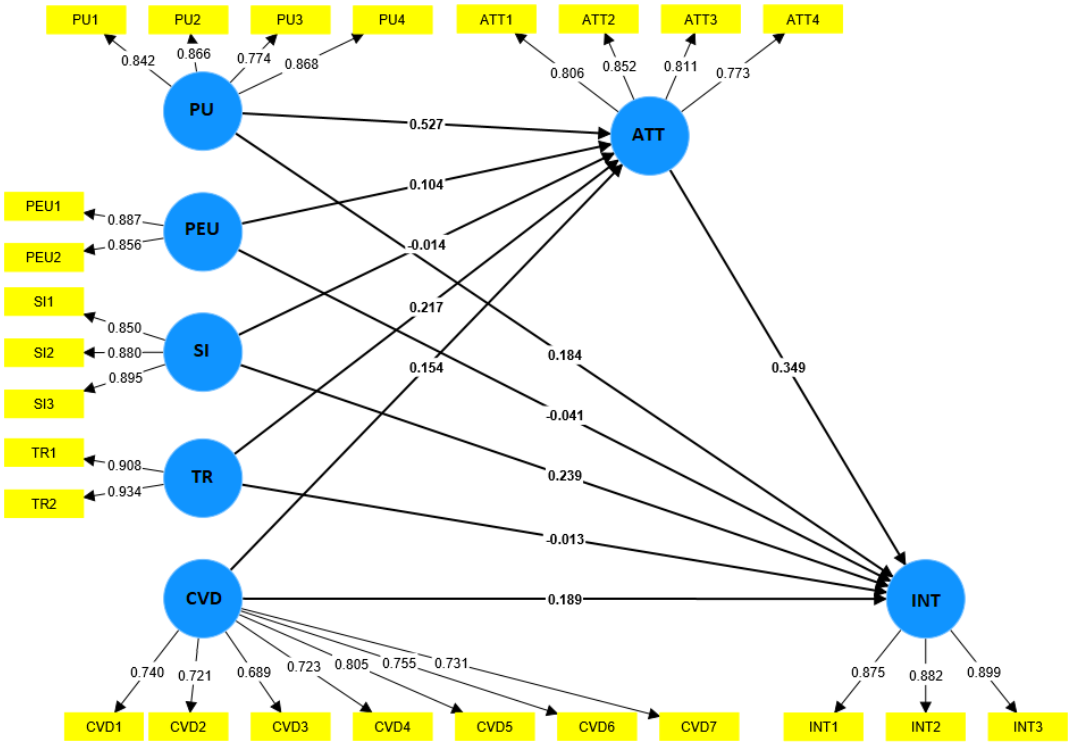

Figure 3. The structural model.

6. DISCUSSION AND IMPLICATIONS

6.1. Discussion

In this study, the researchers aimed to investigate the impact of COVID-19 on customers' attitudes and intentions to use fintech in the context of GCC countries' financial institutions. Data was collected at the beginning of 2021, during the spread of COVID-19, from 484 customers who use financial services in the GCC countries. A data analysis was performed by using component-based SEM through SmartPLS 3.3.3 software. The findings are discussed below.

Customers' attitudes toward using fintech are positively and significantly affected by four variables. The first variable is perceived usefulness ($\beta = 0.526$; $p < 0.01$). This finding is consistent with those of Hu et al. (2019); Rabbani et al. (2021) and Zhao and Bacao (2021); therefore, hypothesis H1a is accepted. The second variable is perceived ease of use ($\beta = 0.104$; $p < 0.05$). This finding is consistent with those of Dahdal et al. (2020) and Zhao and Bacao (2021); therefore, hypothesis H2a is accepted. The third variable is trust ($\beta = 0.217$; $p < 0.01$). This finding is consistent with those of Jena (2022) and Nor and Hashim (2020); therefore, hypothesis H4a is accepted. The fourth variable is situational influences of COVID-19 ($\beta = 0.154$; $p < 0.01$). This finding is consistent with those of Echchabi et al. (2021); Rabaa'i (2021) and Zhao and Bacao (2021); therefore, hypothesis H5a is accepted. These four variables explain 64.1% of the change in customers' attitudes toward fintech ($R^2 = 0.641$), and the rest of the change in this variable is due to other factors not included in the model.

On the other hand, social influences have no significant effect on customers' attitudes toward using fintech ($\beta = -0.013$; $p > 0.05$); therefore, hypothesis H3a is rejected. This result differs from those of Schilirò (2021) and Zhao and Bacao (2021), which may be due to different sample characteristics. This relationship may need further examination, either in a different environment or using another sample in the same environment.

Customers' intentions to use fintech are positively and significantly affected by six variables. The first variable is customers' attitudes toward the use of fintech ($\beta = 0.349$; $p = 0.000$), and based on the results, hypothesis H6 is

accepted. This finding is consistent with those of Hu et al. (2019); Rabbani et al. (2021) and Zhao and Bacao (2021). Second, PU has a direct positive and significant effect on INT ($\beta = 0.184$; $p < 0.01$). It also has an indirect positive and significant effect on INT through ATT ($\beta = 0.184$; $p < 0.01$) since the total path coefficient increased ($\beta = 0.368$; $p < 0.01$); therefore, hypothesis H1b is accepted. Moreover, this finding is consistent with that of Zhao and Bacao (2021). Third, PEU only has an indirect positive and significant effect on INT through ATT ($\beta = 0.036$; $p < 0.01$); therefore, hypothesis H2b is partially accepted. This finding is partially consistent with those of Dahdal et al. (2020) and Zhao and Bacao (2021). Fourth, SI only has a direct positive and significant effect on INT ($\beta = 0.239$; $p < 0.01$); therefore, hypothesis H3b is partially accepted. This finding is consistent with those of Schilirò (2021) and Zhao and Bacao (2021). Fifth, TR only has an indirect positive and significant effect on INT through ATT ($\beta = 0.076$; $p < 0.01$); therefore, hypothesis H4b is partially accepted. This finding is consistent with those of Jena (2022) and Nor and Hashim (2020). Sixth, CVD has a direct positive and significant effect on INT ($\beta = 0.189$; $p < 0.01$). It also has an indirect positive and significant effect on INT through ATT ($\beta = 0.189$; $p < 0.01$), since the total path coefficient increased ($\beta = 0.243$; $p < 0.01$). Therefore, hypothesis H5b is accepted. Moreover, this finding is consistent with those of Rabaa'i (2021) and Rabbani et al. (2021). These six variables explain 56.1% of the change in customers' intentions to use fintech ($R^2 = 0.561$); the rest of the change in this variable is due to other factors not included in the model.

Previous results indicate that the impact of the COVID-19 pandemic on customers' attitudes toward the use of fintech is less than its impact on their intention to use fintech. These findings are logical since COVID-19 has had a greater effect on customers' decisions than on their behaviors. In addition, there are two parts to the effect of the COVID-19 on customers' intentions to use fintech. The first is a direct effect and the second is an indirect effect through customers' attitudes.

In short, the situational impact of COVID-19 has enhanced the positive attitudes among customers of financial institutions in GCC countries to use fintech and to improve the intentions of these customers to adopt fintech tools.

6.2. Implications

As customers become more familiar with the usefulness and ease of use of fintech, they will develop more positive attitudes and intentions toward using it, especially if they have confidence in the fintech service provider. In addition, the situational impact of COVID-19 has resulted in reinforcing these attitudes.

Customers' positive attitudes toward fintech reinforce their intentions to use fintech. Also, the situational influences of COVID-19 have had a positive effect on these intentions. There are two parts to this effect; the first is a direct effect and the second is an indirect effect through customers' attitudes.

Some financial transactions require multiple stages to correctly complete. The manual completion of these stages requires more time and effort and exposes customers to infection during an epidemic. Therefore, it is expected that fintech usage will facilitate the completion of these transactions, save time and effort, and provide greater safety to customers from the risk of infection during epidemics.

Financial institutions should improve the ease of use and safety of fintech tools to encourage customers to use these tools, which will, in turn, reduce the costs of executing financial transactions.

7. CONCLUSIONS, RECOMMENDATION AND FUTURE RESEARCH

The primary purpose of conducting this study was to investigate the factors affecting GCC customers' attitudes toward the use of fintech and, consequently, their intentions to use fintech. The main contribution of this study is that it has added the situational influences of COVID-19 as an independent variable within the fintech adoption model and tested it in the GCC environment during the COVID-19 period.

The findings indicate that perceived ease of use, perceived usefulness, trust, and situational influences of COVID-19 have a positive and significant effect on customers' attitudes toward using fintech. Both customers' attitudes toward the use of fintech and situational influences have a positive and significant effect on their intentions to use

fintech. However, social influences have no effect on customers' attitudes toward using fintech. The situational impact of COVID-19 has enhanced the positive attitudes of customers of financial institutions in GCC countries to improve their intention to use fintech.

In terms of recommendations, financial institutions in GCC countries should support fintech infrastructure and consider customers' perceptions of this technology in terms of its ease of use, perceived usefulness, trust, and the possibility of relying on it to save time and effort in times of crisis, especially events that affect their customers' health, such as what happened during the COVID-19 pandemic.

Fintech providers must ensure that their products are easy to use, useful and safe for their customers. This helps to promote positive customer attitudes toward fintech, and, in turn, this results in increasing customers' intentions to use fintech.

Fintech service providers must develop, diversify and promote financial technology solutions to customers. In addition, they must be prepared to accept fintech as an alternative strategy to providing their services generally to the public and not only during times of crisis.

The main limitation to this study is that it was conducted in the GCC environment during COVID-19. Consequently, the findings may differ in other environments or during other periods. Thus, it is recommended that future studies use different measurements of the research variables in different environments and over different periods of time.

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APPENDIX

Appendix A. The scale used to measure the research variables.

Variable	Code	Item
Perceived usefulness (PU)	PU1	Using fintech can meet my service needs.
	PU2	Fintech services can save time.
	PU3	Fintech services can improve efficiency.
	PU4	Overall, fintech services are useful to me.
Perceived ease of use (PEU)	PEU1	I think the operation interface of fintech is user-friendly and understandable.
	PEU2	It is easy to have the equipment to use fintech services (Cellphone, apps, Wi-Fi, etc.).
Trust (TR)	TR1	I believe that fintech services keep my personal information safe.
	TR2	Overall, I believe that fintech services are trustworthy.
Social influence (SI)	SI1	People whose opinions I value prefer that I use fintech.
	SI2	People who are important to me viewed m-payments as beneficial during the COVID-19 pandemic.
	SI3	People who are important to me supported me in the use of m-payments during the COVID-19 pandemic.
Attitude toward the use of fintech (ATT)	ATT1	I believe that using fintech services is a good idea.
	ATT2	Using fintech services is a pleasant experience.
	ATT3	I am interested in fintech services.
	ATT4	Using fintech yields a superior outcome than traditional financial services.
Intention to use fintech (INT)	INT1	I would like to use fintech services soon.
	INT2	I will recommend fintech services to my friends.
	INT3	I predict that I will frequently use fintech in the future.
Situational influences of COVID-19 (CVD)	CVD1	Bank ATMs and CCDMs became unsafe to use during the outbreak of COVID-19.
	CVD2	I avoid touching paper money/coins/cards/cheques/payment terminals (with PIN) after COVID-19.
	CVD3	Many institutions directly stopped providing their services during the COVID-19 pandemic.
	CVD4	There were significant health risks associated with visiting institutions during the COVID-19 pandemic.
	CVD5	Online institutions expanded their range of services during the COVID-19 pandemic.
	CVD6	Online institutions offered more fintech promotions during the COVID-19 pandemic.
	CVD7	Online shopping became a trend during the COVID-19 pandemic.