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**Magagula, Nothando Linnet**

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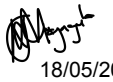
# Consumer Acceptance of Fintech Services in the South African Banking Sector: A COVID-19 Context

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**A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business**

**Johannesburg, 2022**



18/05/2023

Signed by: NL Magagula

# ABSTRACT

The emergence of fintech has disrupted the conventional method of delivering financial services to consumers by providing them with innovative, user-friendly, cost-effective, and secure solutions. Due to the COVID-19 pandemic, there has been a noticeable influence on the utilisation of fintech technologies, as many individuals have been compelled to embrace novel technologies to handle their financial affairs while maintaining social distancing measures.

This study explores the consumer acceptance of fintech services in the South African (SA) banking sector, focusing on the COVID-19 context. The conceptual framework used in the study is the Technology Acceptance Model (TAM), which considers factors such as perceived usefulness, perceived ease of use, and behavioural intentions and other adopted factors from previous literature such as Perceived Risk, Trust, User Innovativeness, Perception of COVID-19 and Fintech Acceptance.

The research aims to understand the extent to which consumers are willing to adopt fintech services by identifying the relationship between behavioural intention and other factors influencing their decision-making process. The study draws on primary and secondary data sources to provide insights into consumer fintech acceptance and adoption during the COVID-19 pandemic in the South African banking sector.

After conducting empirical research, a convenience sample of 156 South African banking customers participated by completing an online survey shared on various social media platforms. The data collected was analysed using Structural Equation Modelling in AMOS software.

The main findings of this study reveal that behavioural intention has a positive relationship between these five factors, namely, perceived usefulness, perceived ease of use, trust, fintech acceptance and user Innovativeness; this suggests that these factors are significant in measuring consumer acceptance of fintech services in SA banking. However, the perception of COVID-19 and

perceived risk were found to be insignificant measures based on the data collected.

This study aimed to understand the consumer acceptance of fintech services in SA banking consumers during the COVID-19 pandemic however, it does have some limitations due to the method of collection used and the targeted population.

The study concludes by offering recommendations for banks to enhance their offerings and increase consumer acceptance and adoption of fintech services.

# KEYWORDS

Consumer Acceptance

Technology Acceptance

Fintech

Financial Technology

Banking

COVID-19

South Africa

# DECLARATION

I, Nothando Linnet Magagula, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Name: Nothando L Magagula Signature: 

Signed at Emalahleni

On the 23 day of February 2023

# DEDICATION

This master's project is dedicated to my parents, Samson & Christabel Magagula, for their continual support in pursuing my educational empowerment and career.

It is also dedicated to my son Luthando Lunathi Masombuka who was in utero during this project and whose constant kicks kept me going and inspired me to finish this project.

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# LIST OF ACRONYMS

| | |
|---|---|
| **4IR** | **Fourth Industrial Revolution** |
| **ACP** | **Acceptance** |
| **AI** | **Artificial Intelligence** |
| **AVE** | **Average Value Extracted** |
| **BI** | **Behavioural Intent** |
| **CA** | **Consumer Acceptance** |
| **CFA** | **Confirmatory Factor Analysis** |
| **CFI** | **Comparative Fit Index** |
| **CMIN** | **Chi-square minimum** |
| **CMV** | **Common Method Variance** |
| **COVID** | **Corona Virus** |
| **CR** | **Composite Reliability** |
| **DF** | **Degree of Freedom** |
| **EFA** | **Exploratory Factor Analysis** |
| **FA** | **Fintech Acceptance** |
| **FINTECH** | **Financial Technology** |
| **FSCA** | **Financial Sector Conduct Authority** |
| **GFI** | **Goodness-of-Fit Index** |
| **ICT** | **Information Communication Technology** |
| **IS** | **Information Systems** |

| | |
|---|---|
| **IT** | **Information Technology** |
| **ML** | **Machine Learning** |
| **NICD** | **National Institute for Communicable Diseases** |
| **PCOV** | **The Perception of the COVID-19 Pandemic** |
| **PEU** | **Perceived Ease of Use** |
| **PoC** | **Perception of COVID-19** |
| **PR** | **Perceived Risk** |
| **PU** | **Perceived Usefulness** |
| **QR** | **Quick Response** |
| **RMSEA** | **Root Mean Square Error Approximation** |
| **RPA** | **Robotics Process Automation** |
| **SA** | **South Africa** |
| **SARB** | **South African Reserve Bank** |
| **SEM** | **Structural Equation Model** |
| **SME** | **Small Medium Enterprise** |
| **SNS** | **Social Networking Sites** |
| **SPSS** | **Statistical Package for the Social Sciences** |
| **TAM** | **Technology Acceptance Model** |
| **TR** | **Trust** |
| **TRA** | **Theory of Reasonable Action** |
| **UI** | **User Innovativeness** |

| | |
|---|---|
| **UTAUT** | **Unified Theory of Acceptance and Use of Technology** |
| **WBS** | **Wits Business School** |
| **WEF** | **World Economic Forum** |
| **WHO** | **World Health Organisation** |

# CHAPTER 1. INTRODUCTION

## 1.1 Statement of purpose

Fintech has allowed many users across the globe to efficiently conduct their tasks on the go using mobile services such as making payments, investments, applying for loans and making purchases (Chang et al., 2016).

Financial services and fintech incubators are driving the use of fintech services through new and innovative ways to cater to consumers' financial needs, and part of this requires these institutions to persuade their customers of the value, usefulness, and advantages of fintech services (Stewart & Jürjens, 2018).

In the present context, it has become essential to consider the effects of the COVID-19 pandemic and how it has changed and shaped the "new normal" for consumers and businesses.

Adoption & acceptance of Fintech services has increased over the years; where according to Ernst and Young (2019), the global consumer adoption of Fintech was 16% in 2015, 33% in 2017 and 64% in 2019, with the top 5 emerging markets with the highest adoption rate being:

1. China 87%
2. India 87%
3. Russia 82%
4. South Africa 82%
5. Colombia 76%

In this exploratory case study, the factors that influence consumer acceptance & usage of fintech services during the COVID-19 pandemic in the South African banking sector will be established by applying the Technology Acceptance Model (TAM) and other TAM-derived constructs.

## 1.2 Background of the study

Digital transformation in organisations has influenced how people interact and do business; banking is one industry characterised by its advancements and technology in delivering its services to customers (Phaneuf, 2022).

Banking services are no longer confined to the four walls of a branch as there has been a change in how banks provide their services to customers. Banks are becoming more digitally focused and turning to self-service technologies such as mobile and internet banking (Brown et al., 2003).

Mobile banking services have brought ease of use and convenience to consumers, which have improved customer satisfaction; mobile banking services are becoming more secure and accessible and have changed the way banks offer their traditional services to customers, which has accelerated the development & change of their traditional banking business models (Chakiso, 2019).

Mobile banking services allow customers to perform several banking activities such as (not limited to the following):

- View account balance.
- Make payments/ transfers (nationally and internationally)
- Schedule payments
- Make amendments to card limits.
- Cancel and order new bank cards.
- Open additional accounts
- Apply and maintain loans/credit.
- Check credit score.
- Pay for purchases using QR codes.
- Buy electricity, airtime, and data.
- Maintain beneficiaries.
- Update banking details
- Apply for insurance products.
- Pay taxes and fines.

- Maintain and manage investments.

The above banking activities offered through digital banking channels allow customers to fulfil their financial needs without physically going to a bank branch.

SA's Fourth Industrial Revolution (4IR) has revolutionised basic operations and business, leading to purely digital banking entrants such as Bank Zero, TymeBank and Discovery Bank (BusinessTech, 2021). One of the 4IR technologies being implemented in the banking and financial services sector is Financial Technology (Fintech).

Fintech is used to describe several financial activities such as digital lending, money transfer and managing your investment portfolio with your smartphone. This bypasses the need to visit a branch and financial assistance to perform these financial activities (Kagan, 2020).

Ernst & Young (2019) describe fintech as making financial services more available to consumers and businesses by connecting the digital world to customers.

Fintech represents a new way and era of innovation using technology; this technology is used to help enhance human-machine relationships to unlock new market opportunities and accelerate growth across SA and the global economy (Tshabalala & Beharry-Ramraj, 2021).

The widespread adoption of different 4IR technologies across various banking institutions has resulted in an abnormal increase in the demand for digital banking experiences from millennials and Generation Z customers. It transforms the entire banking industry (Phaneuf, 2022).

The enforced lockdown restrictions of the COVID-19 pandemic had an immense influence on the functioning of societies and many sectors of economic life (Sulkowski & Ignatowski, 2020). The COVID-19 virus is an acute respiratory syndrome that is severe and contagious; it emerges from the coronavirus-2 syndrome (SARS-CoV-2). The first virus report was from Wuhan City in China in

December 2019; the World Health Organisation (WHO) declared the virus a global pandemic in less than three months.

In South Africa (SA), the first case of COVID-19 was confirmed on the 5th of March 2020 by the National Institute for Communicable Diseases (NICD). The President of SA, Cyril Ramaphosa, announced the National Lockdown for 21 days on the 23rd of March 2020, from March 26 to April 16, 2020, to contain the spread of the coronavirus (Tian et al., 2020); however, due to the development of the virus and the inability at the time for a cure and vaccine, the country remained in State of Disaster and lockdown with the introduction of different levels, which led to the easing of some of the restrictions. The SA government later terminated the state of disaster in South Africa on the 04$^{th}$ of April 2022 after 750 days of lockdown.

With the lockdown restrictions being implemented, consumers had to isolate physically, and social distancing protocols had to be observed. These COVID-19 pandemic restrictions affected many businesses of all sizes as many companies had to close; some companies had to remain creative and come up with innovative ways to leverage the use of 4IR technologies to help them continue to deliver their products and services to customers whilst adhering to COVID-19 regulations (Tshabalala & Beharry-Ramraj, 2021).

The COVID-19 effects on the banking and financial industry included the intensifying of technological advances, the use of digital platforms, and changes in consumer financial needs and behaviour (Baicu et al., 2020).

Consumer needs and consumption were time and location-bound due to the lockdown restrictions enforced to contain and control the spread of the virus (Sheth, 2020). According to McKinsey and Company (2020), 45% of South Africans said they would visit a branch less often, while 42% echoed their increased usability and visibility of online and mobile banking interactions with their banks.

Research done in Romania titled “The impact of COVID-19 on consumer behaviour in retail banking – evidence from Romania” found that the extent of

mobile and internet banking services usage had increased during the pandemic when compared to the period before the pandemic (Baicu et al., 2020).

The article by Baicu et al., (2020) further suggested that banking institutions should closely monitor consumer behaviour, financial banking needs and consumer perception even during the pandemic; there is a huge possibility that a substantial number of consumers may continue to utilise the newly adopted technological advancements even when the bank's resume their full operations and start opening their traditional branches for service.

A study by Singh et al., (2020) provides an empirical observation. It evaluates the Technology Acceptance Model (TAM) as a theoretical framework by reviewing previous literature and publications that may be linked to factors which may influence and examine the main factors used to determine consumer acceptance in Fintech.

The study by Singh et al., (2020) was conducted to identify the acceptance of Islamic banking services by Malaysian users using the extension of the Technology Acceptance Model; Fintech's consumer acceptance in this research conducted by Singh et al., (2020) identifies perceived ease of use, perceived usefulness, consumer innovativeness, self-efficacy and subjective norm as influencing the consumer acceptance, the Technology Acceptance Model is further extended to include other constructs that are specific to the nature of the Islamic Fintech area.

A similar study by Khuong et al., (2022) also references the TAM model to identify the factors influencing consumer acceptance of financial technology by looking at consumers' attitudes towards the technology, perceived usefulness, perceived ease of use, behavioural intentions, and other external variables.

Another study conducted in China on the influence and relationship between adoption and behaviour of banking consumers is examined through TAM, where the main factors identified in consumer acceptance of financial technology are perceived usefulness, perceived ease of use, attitudes, and user innovativeness (Hu et al., 2019).

Most of the above-existing research studies how TAM is applied from the perspective of the business and how the business can use fintech to improve efficiency and customer experience (Hu et al., 2019); however, this study will focus on the consumer side of acceptance and how consumers use financial services to fulfil their own financial needs during the COVID-19 pandemic.

## 1.3 Research problem

In the banking industry, examining the attributes that impact customers' acceptance and behavioural intention to utilise fintech services is crucial, as it enables banking and financial technology firms to anticipate customers' willingness to adopt and employ these services (Le, 2021). This is especially important considering the rising popularity of these solutions and technologies introduced to meet consumers' demands and help organisations gain a competitive edge.

The research problem identified in this study is to identify the main factors applied in the TAM model that influence consumer acceptance and usage of financial services in the banking sector during the COVID-19 pandemic in SA.

According to Baicu et al., (2020), previous studies have examined how consumers accept technology based on perceived risk, perceived ease of use, data security and perceived usefulness.

The common TAM factors derived from past research were identified as follows:

i. Behavioural Intent
ii. Perceived ease of use
iii. Attitudes
iv. Perceived Usefulness
v. Perceived risk
vi. User Innovativeness

Previous research from countries such as Malaysia, Israel, Poland and Romania has focused on the type of administrative and financial technology services being used and adopted, such as mobile banking, mobile wallets, internet banking,

online payments etc. and applying TAM on how consumers are accepting or adopting those particular technologies (Le, 2021) not much of this research has been conducted from a Banking in SA context during the COVID-19 pandemic.

According to Baicu et al., (2020), financial institutions should leverage pandemic scenarios and research outcomes from previous COVID-19 studies to test their operational resilience. By doing so, they can utilise the identified trends and findings to gain insights into emerging threats and identify opportunities based on customer needs.

This research study will consider the COVID-19 pandemic and extend the application of the traditional TAM factors to identify more factors that may influence consumer acceptance and behavioural intent, such as Trust (TR), User Innovativeness and the Perception of the Covid-19 Pandemic (PCov).

The study's outcomes can be used to shape and improve the performance of financial technology services life cycle and strategies and even enable banks to increase their economies of scale for a more global-centric objective (Stewart & Jürjens, 2018).

## 1.4 Research Questions

**Main Question:**

What are the main factors influencing the behavioural intent of consumers to accept and use fintech services in the South African banking sector during the COVID-19 pandemic?

**Sub Questions:**

i. What is the relationship between behavioural intent and perceived ease of use?
ii. Does trust positively influence behavioural intent to use fintech services?
iii. What is the relationship between behavioural intent and perceived usefulness?

iv. What is the relationship between behavioural intent and user innovativeness?
v. Does perceived risk negatively influence behavioural intent?
vi. Does behavioural intent influence fintech acceptance?
vii. What was the behavioural intent to use fintech services during the COVID-19 pandemic in the banking sector in SA?
viii. What financial technologies are consumers using to fulfil their banking/financial needs/services?
    - Before COVID-19
    - During COVID-19

## 1.5 Rationale

The COVID-19 pandemic has changed how consumers interact and use technology and financial services. Widespread lockdowns were being implemented, remote work became rife, social distancing measures were introduced, and consumers rapidly adopted digital technologies and digital financial services such as mobile banking and online e-commerce services.

The rationale for conducting such a study can be discussed in the following points:

- Understanding consumer acceptance of fintech services during the pandemic can help provide insights into how the pandemic has influenced consumer behaviour, as there was an increased comfort level with digital financial services and a shift towards mobile banking. A report conducted by McKinsey and Company (2020) found that the pandemic has accelerated the adoption of digital financial services, with consumers rapidly adopting mobile banking and online investment platforms.
- To identify the various adoption patterns caused by the pandemic as the pandemic accelerated the adoption of fintech technologies, which makes it a necessary time to study its effects on adoption and use to determine what factors drive or hinder the acceptance of these technologies (World Bank Group, 2022).

- To investigate the long-term implications of the pandemic on the financial services industry.
- To provide guidance based on academic research to industry stakeholders such as banks and fintech companies on how they can better meet the changing needs of the consumer as the pandemic created a “new normal” in financial services with consumers expecting better convenience, accessibility, and secure digital financial services (Boston Consulting Group, 2021).
- The COVID-19 literature is relatively recent, having only emerged in late 2019. While it has grown substantially in the medical sciences, there are still gaps in the social sciences, as noted by Alhajjaj and Mohammad Khalaf Ahmad (2022). Consequently, there has been limited research on how South African banking sector consumers accept financial technologies during the pandemic. To better understand the pandemic's impact on the banking sector, it is essential to conduct such a study to identify the changes and effects.
- To provide actionable insights through data collection for banks and other financial technology institutions to adjust their business strategies, marketing strategies and business goals to adapt to changes in consumer behaviour based on how consumers are now accepting fintech services in the bank that cater to their financial needs (Hu et al., 2019).
- This study aims to contribute to the limited research on the acceptance and usage of fintech services in developing nations like South Africa. By testing the acceptance of fintech services among banking consumers before and during the COVID-19 pandemic, the study seeks to understand the country's historical and current state of fintech usage.

## 1.6 Delimitations of the study

i.

ii. The study is limited to SA banking consumers.

iii. It is an exploratory study which can be limiting based on the variables examined.
iv. The study will focus on banking services or institutions implementing financial technologies. The following are identified as delimitations:
v. This study will focus on the next Financial Technologies
    - Cryptocurrencies
    - Digital Banking
    - Digital Wallet
    - Insurtech
    - Digital wealth management
    - Digital lending
    - Blockchain
vi. Influences on consumer acceptance of Fintech usage and adoption are not exhaustive.
vii. Sample for data collection will be collected via an online survey shared across social media platforms such as LinkedIn, Twitter, WhatsApp, and Instagram.

## 1.7 Definition of terms

### 1.7.1 *Financial Technology*

Fintech is short for financial technology and is the term used to describe new technologies and tools to improve and automate financial services (Rajczyk, 2021).

Types of Financial Technologies that will be covered in the research study:

*i.* Cryptocurrencies: *A digital currency or digital asset designed to work as a medium of exchange through a network of computers; this currency does not belong to a central authority, bank, or government.*
ii. Digital Banking: *A means of accessing your banking services through your bank's website via mobile phone or computer.*

iii. Digital Wallet: An application or service that allows users to make payments electronically/digitally.
iv. Insurtech: The technological innovations applied to the current insurance model to make things more efficient.
v. Digital wealth management Uses digital tools as an investment solution to offer investors various savings and investment products.
vi. Digital lending: The processing of loans and credit over the Internet via mobile devices.
vii. Blockchain: A digital ledger or system is designed to record information in a manner that duplicates and distributes it across a network of computers, making it challenging to alter, manipulate, or breach the system.

The above definitions are derived from Hayes (2022).

### 1.7.2 *Consumer Acceptance*

Consumer acceptance is the extent to which an existing consumer will use a particularly innovative product or service introduced by a specific product or service provider (Matsepe & Van der Lingen, 2022).

### 1.7.3 *Consumer Behaviour*

Consumer behaviour is a necessary and essential process involving constant decision-making regarding how consumers purchase, use, and dispose of goods and services; it also investigates the emotions, attitudes and preferences that may affect consumer buying behaviour (Mehta et al., 2020).

### 1.7.4 *Technology Adoption*

Technology adoption is the successful acceptance, integration, and use of technology to its full benefit and potential (Altadonna, 2019).

### 1.7.5 *Technology Acceptance*

Technology acceptance is a user's willingness to adopt and use technology for its intended purpose, e.g., using a cell phone to make calls and stay connected with your loved ones (Altadonna, 2019).

## 1.8 Assumptions

i.

ii. To encourage truthfulness, anonymity and confidentiality will be maintained during data collection. It will take a long time and effort to verify the answers of each survey participant, so it can be assumed that the answers provided by participants will be truthful. The following assumptions can be made about the study:

iii. The generated survey and the subsequent administering were intended for South African banking consumers.

iv. Not all surveys distributed will be returned 100% complete.

v. We assume all participants will be literate enough to understand the questions asked and will have access to the internet using some form of mobile or digital device.

## 1.9 Chapter Outline

Outline of Research Proposal

### 1.9.1 *Chapter 1: Introduction and background to study*

This chapter focused on the introduction of the study, which investigated the background of banking in SA and its adoption of 4IR technologies such as fintech, as well as a background into the effects of the COVID-19 pandemic in SA.

The chapter further investigates the research problem statement, the importance of the study, limitations & assumptions, and definitions of the critical terms of the study were described.

### 1.9.2 *Chapter 2: Literature review*

In this chapter, the findings of what has been previously reported in the literature were identified in the following themes:

i. Background on Consumer Acceptance
ii. Background on Financial Technology
iii. Background on the SA Banking sector
iv. Background on COVID-19 Pandemic
v. Consumer behaviour and the COVID-19 Pandemic
vi. Financial Technology in South Africa
    a. Financial Technology and Banking in SA
    b. What literature has documented about the COVID-19 pandemic and changes in consumer behaviours and consumer acceptance to fintech?
vii. Technology Acceptance Model

The theoretical and conceptual framework that will be modelled in this study is the TAM model, which will be used to measure the following hypothesis:

H1: Users' perceived usefulness (PU) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.

H2: Users' perceived ease of use (PEU) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.

H3: Users' trust (TRU) in fintech services positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.

H4: Fintech Acceptance (FA) by banking consumers was accelerated by their positive Behavioural Intent (BI) to use fintech services during the COVID-19 pandemic.

H5: Perceived risk (PR) will negatively influence consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.

H6: Users' innovativeness (UI) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.

H7: The Perception of the COVID-19 (PCOV) pandemic positively influences Behavioural Intent (BI) towards using fintech services.

### 1.9.3 *Chapter 3: Research methodology*

In this chapter, the research methodology will be discussed. This research will look at a Quantitative research approach. A cross-sectional survey method was used in which a structured electronic survey was distributed across several social media platforms such as LinkedIn, Twitter, WhatsApp, and Instagram, which achieved 156 responses that will be used for data interpretation and analysis.

The target group, population, sampling of the study and data methods, strategies and procedures for data collection will be discussed. Quality assurance and ethical considerations, possible challenges and limitations of the research will be discussed to conclude the chapter on Research Methodology.

### 1.9.4 *Chapter 4: Presentation of Results*

In this chapter, the focus will be on presenting the results based on the electronic survey completed by 156 respondents; the results will investigate the descriptive statistics, which will cover the demographical results of the respondents.

The electronic survey will be tested for validity and reliability, and the seven hypotheses will also be tested to measure their level of correlation.

### 1.9.5 *Chapter 5: Discussion of Results*

Chapter 5 discusses the findings of the research based on descriptive statistics and hypotheses testing in context to the literature discussed in the literature review to corroborate the current results.

### 1.9.6 *Chapter 6: Conclusions & Recommendations*

The study will conclude by presenting its findings, conclusions, and recommendations for scholars, academics, and practitioners, including suggestions for future research in financial technology.

# CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

In this chapter, the findings of what has been previously reported in the literature with regards to the topics of consumer acceptance to fintech in the SA banking sector during the COVID-19 pandemic will be identified along with the use and extension of the Technology Acceptance Model to discover factors that influence consumer acceptance. It indicates the different views of authors who have already published work on the research paper topic.

### 2.1.1 *General background on Consumer Acceptance*

Consumer acceptance is not a separate literature point but a process in determining consumer behaviour (Cruz-Cárdenas et al., 2021).

Consumer acceptance is the extent to which an existing consumer will use a particularly innovative product or service introduced by a specific product or service provider (Matsepe & Van der Lingen, 2022).

In this research study, consumer acceptance is a variable that will be measured against SA banking consumers' interaction and use of fintech during the COVID-19 pandemic.

### 2.1.2 *General background Financial Technology*

Financial technology (FinTech) is an evolving field that is described and is enabled by financial products and services using Information Communication Technologies (Nawayseh, 2020). Fintech encompasses digital technologies such as blockchain, cryptocurrencies, big data, and artificial intelligence investment partners widely used in the financial sector (Hu et al., 2019).

According to Accenture (2021), from 2010 to 2016, investment in financial technology has seen an immense increase in dollars from $12.2 billion to $153.1. A study conducted in Vietnam examines the increased competition between banking institutions and fintech companies, investigating the factors that impact

fintech adoption in the banking sector. The intensified rivalry has prompted traditional financial and banking institutions to continuously improve service quality, attract and retain customers, expand their market share, and stay competitive (Khuong et al., 2022).

In their Global Fintech Index, Ernst & Young (2019) identified that 96% of consumers know of at least one or more money transfer or payment fintech services. Other studies have focused on specific fintech innovations like internet/mobile banking, while very few studies have looked into other complex financial technologies like blockchain, mobile money and mobile wallets (Nawayseh, 2020).

### 2.1.3 *General background on the South African banking sector*

According to BusinessTech (2021), the South African big five banks, i.e., ABSA, Nedbank, FNB, Standard Bank and Capitec, all now provide some form of digital banking service to their customers as this has become a way for these institutions to reduce costing, improve on their efficiencies and allows them to differentiate the types of products and services they offer compared to their competitors.

Digital banking was first launched in SA around the late 90s; however, internet users typically formed part of the upper-income bracket of educated individuals (Brown et al., 2003). Since the 90s, the number of internet and digital users in SA has drastically increased, with 41.19 million internet users as of 2022, according to Statista (2022); these users span across different income and educational backgrounds.

The SA banking industry is described as a highly intensive information and data-rich industry that continuously pioneers the advanced use of information technology (Singh et al., 2020).

The African continent is the world's largest adopter of mobile money transfer systems, which accounts for 70% of global mobile money transactions; the big five banks' foreign operations across the rest of Africa contribute 17% to the total headline earnings (PWC, 2022).

### 2.1.4 *General background on the COVID-19 Pandemic*

Since the detection and communication of the first COVID-19-positive case on the 5th of March 2020 in South Africa, the country has had to adjust to many changes; business operations had to be readjusted along with all the sectors of the economy (Mhlanga, 2021).

According to Devanesan (2021), the COVID-19 strain has been described as one of the deadliest strains and causing the most life-threatening pandemic of the 21st century; the pandemic impacted the public health sector and changed the way we do things, our social norms, and affected the entire global economy.

According to Mathe (2021), the product categories that have experienced the most success during the COVID-19 pandemic are banking, insurance, health, and home entertainment.

## 2.2 Consumer Behaviour and the COVID-19 Pandemic

Sheth (2020) describes how consumers are learning to improvise and realise new habits. Even though consumers may return to the old way of doing things and old habits, the consumer behaviours adapted during the pandemic will likely be modified by new working methods, regulations, and procedures.

Due to imposed quarantines and lockdown restrictions, consumers had to adjust to prolonged homestay. Consequently, consumers were inclined to embrace novel technologies that facilitated their work, education, and access to entertainment. This adoption and dependence on digital technology are expected to transform existing habits and foster new consumer habits (Werner-Lewandowsk et al., 2021).

Werner-Lewandowsk et al., (2021) described some consumer behaviours identified in the study conducted in Poland on the “Effect of COVID-19 on Consumer Behaviour”:

- Essential products for daily consumption were amongst the most stockpiled, which led to temporary shortages and scarcities.

- Consumers postponed purchasing and consumption of high-value durable goods as these were times of uncertainty, and some countries had restrictions applied to the sale of these high-value durable goods.
- Consumers accepted the use of new technologies and applications for learning, work, information sharing and online consultation due to sheer necessity.

According to Devanesan (2021), variations in consumer purchasing behaviour based on age demographics were observed. Millennial and Gen X consumers increased their spending, owing to their economic resilience and the ability to continue working from home and maintain their income. In contrast, Generation Z consumers decreased their spending due to the economic disruption.

A study conducted by de Villiers (2020) titled “Accelerated Technology Adoption by Consumers during the COVID-19 Pandemic” identified how consumers almost instantaneously adapted to the convenience and social distancing offered by digital channels as a means of communication and online portals for shopping and socialising.

Information plays a vital role in aiding consumers' decision-making processes. Amidst the COVID-19 pandemic, consumers heavily relied on indoor communication to keep up with the world. Consumers sought information actively and passively, and social media was a prevalent source of information they relied on (Cruz-Cárdenas et al., 2021).

The trajectory of the pandemic being uncertain, consumer behaviour throughout the various stages of the pandemic displayed a blend of old and new habits and behaviours. The pandemic-induced shift in consumer habits and behaviours emphasised the need for companies to adopt more flexible and agile approaches to meet consumer needs and behaviours, according to Cruz-Cárdenas et al., (2021).

Increased virtual and online shopping during the COVID-19 pandemic caused consumers to be less loyal to their regular retail brands as retailers that had already established their digital channels and could continue to operate online were able to survive; this made it difficult for retailers to maintain their customers’

loyalty because consumer satisfaction had decreased (Cruz-Cárdenas et al., 2021).

Fu and Mishra (2022) investigated the influence that the COVID-19 pandemic had on the usage and acceptance of Fintech in which they demonstrated that the spreading of the virus accompanied by government-imposed lockdown restrictions led to a significant increase in the downloads of applications that offered financial services. The study collected data on mobile applications from 71 countries during the COVID-19 pandemic and discovered a 33.1% increase in mobile financial applications and 36.6% in online personal loans, especially in developing countries.

## 2.3 Financial Technology in South Africa

The financial services/banking sector provides various services to facilitate economic activities in more developed economies. There have been a lot of technological advancements in information communication technologies (ICT) over several years that have significantly revolutionised the banking sector, enabling an increased level of efficiency and innovative service delivery (Nawayseh, 2020).

Fintech is transforming the banking, insurance, and financial services sector globally; this introduces many benefits in improving efficiencies in finances and allows SA to use these financial technologies to strengthen the economic disparities of SA that may include those who have been previously excluded financially from participating (Genesis Analytics, 2020).

SA's financial sector is globally recognised, and according to Geldenhuys (2020), 218 active financial technology companies are operational across eight segments being, Insurtech, Payments, Lending, Deposits & Savings, Investments, Financial planning & advisory, Capital raising and B2B Tech providers.

The lending segment in SA encompasses 28 Financial Technology companies; 18 FinTech's provide online lending services for individuals and small and medium enterprises (SMEs) (Genesis Analytics, 2020).

Mobicred is a fintech company that operates in the personal lending sector. It employs a unique business model that permits consumers to request credit while using online shopping platforms. This service targets individuals who do not use credit cards but require a single credit facility for online purchases. Mobicred charges transaction and servicing fees comparable to the standard credit rates applied to credit cards issued by banks, as noted by Geldenhuys (2020).

Other credit lending entrants in the SA lending space are Zero Pay and PayFlex. PayFlex prides itself in offering the first interest-free payment plan in South Africa. PayFlex instalments are spread across six weeks, and consumers only pay 25% of the purchase price at checkout; consumers have access to their goods immediately with no additional costs except for the default fee of R85.00 when they miss an instalment payment (PayFlex, 2022).

According to Genesis Analytics (2020), SA has a fast-growing financial technology industry with several benefits and risks. Due to this, regulatory bodies need to understand the financial technology landscape in SA to help manage the risks, so they do not stifle innovation.

The South African Reserve Bank (SARB) has communicated that foreign exchange controls will be applied to cryptocurrencies such as bitcoin, and all crypto asset service providers will need to apply for a special license from the Financial Sector Conduct Authority (FSCA) (Theunissen, 2021).

The SARB has implemented a Blockchain case study for central banking called "Project Khokha" to trial the interbank use of Distributed Ledger Technology (DLT) which will help eliminate the need for a process to validate and authenticate transactions (SARB, 2020).

There are currently no specific regulations that govern Fintech use in businesses, products and services in SA; Fintech providers are encouraged to model their interactions to traditional financial institutions whilst a proper framework is

developed to regulate the fintech industry without suppressing the innovation and disruptive nature of Financial Technologies (Li et al., 2017).

There are currently 22 fintech in the Investment segment, 10 of which are cryptocurrency and eight are retail trading platforms. Cryptocurrency trading platforms like Luno and Project Ubu in SA have simplified buying and selling cryptocurrencies on your mobile phone (Genesis Analytics, 2020).

### 2.3.1 *Financial Technology and Banking in SA*

According to Khuong et al., (2022), in 2020, the following Global Fintech sectors thrived as the number of Fintech users in banking grew, especially from the Millennials:

i. Payments accounted for 33% of the market share in financial technologies.
ii. Peer 2 Peer Lending accounted for 15.5 % of the market share in financial technologies.
iii. Blockchain/Crypto accounted for 13% of the market share in financial technologies.
iv. Point of Sale (POS) accounted for 7% of the market share in financial technologies.
v. Wealth Management accounted for 7% of the market share in financial technologies.

Financial technology and the banking sector utilise ICT by leveraging technological advancements such as AI and machine learning, big data, blockchain, and cloud computing to discover new opportunities, recognise risks, and address legal concerns. The significant benefit of financial technologies for banks lies in the comprehensive data analysis and personalisation of customer experiences through data analytics and predictive analytics (Nawayseh, 2020).

Financial technologies such as mobile applications help expose individuals in developing countries to various financial services such as savings, loans, and

payments. M-Pesa is an example of digital financial technology used widely in developing countries (Nawayseh, 2020).

In partnership with financial technology, banking seeks to provide an all-in-one solution that has merged all the banks' digital financial services (Baicu et al., 2020).

One identified aspect of Fintech that can help make financial services more secure is the use of blockchain technology, which is secure and ideal for financial transactions and the protection of consumer transaction data (Lee, 2018).

Existing research in SA has explored the adoption and acceptance of determinants of emerging 4IR technologies. However, studies about AI, ML, DLT and cloud computing in the context of the SA financial sector has been limited (Mathe, 2021).

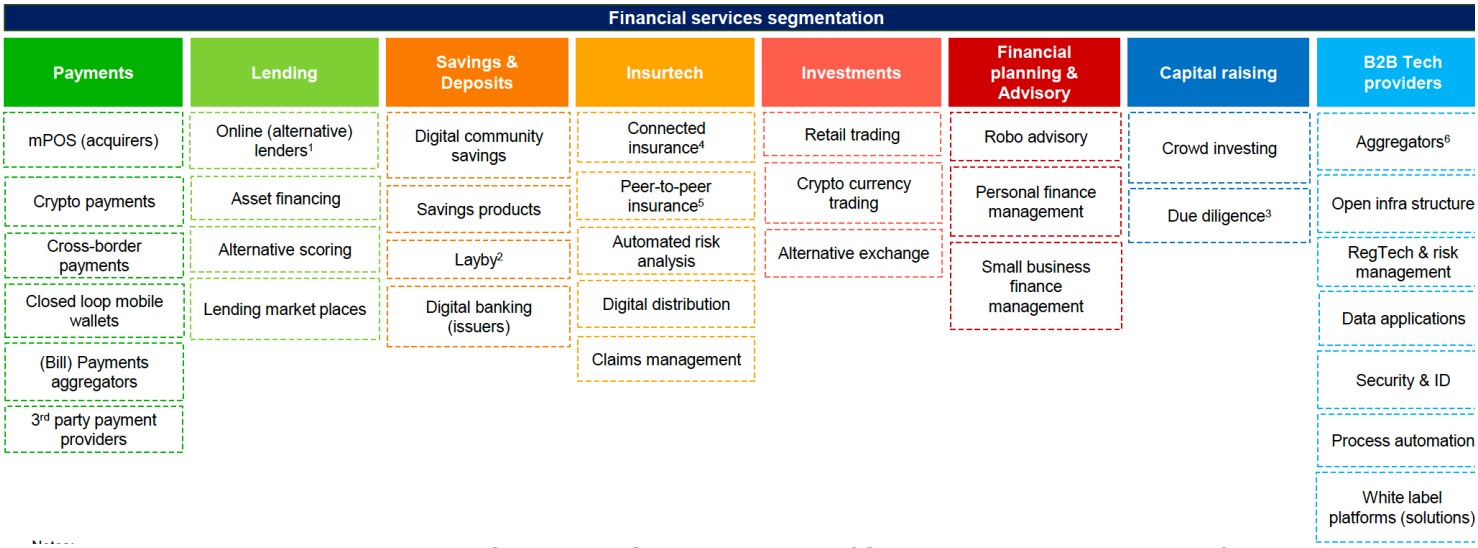



**Figure 2.1: Financial Services Segmentation (Genesis Analytics, 2020)**

The banking sector is going through a rapid transformation due to the growing presence of fintech start-ups and millennials' widespread use of fintech. However, as the number of fintech start-ups increases rapidly, there is a significant need to be prepared for cybersecurity threats since new threats and potential risks of fraud are also on the rise (Puschmann, 2017).

Genesis Analytics (2020) studied Fintech Scoping in SA and discovered 218 actively operating financial technology companies in SA. The financial technology companies in SA offer bank-like services and other consumer services such as wealth management, stock market trading, lending, crowdfunding, foreign exchange market services, payment, and insurance services on their platforms (see Figure 2.2 on Segmentation of fintech in South Africa).

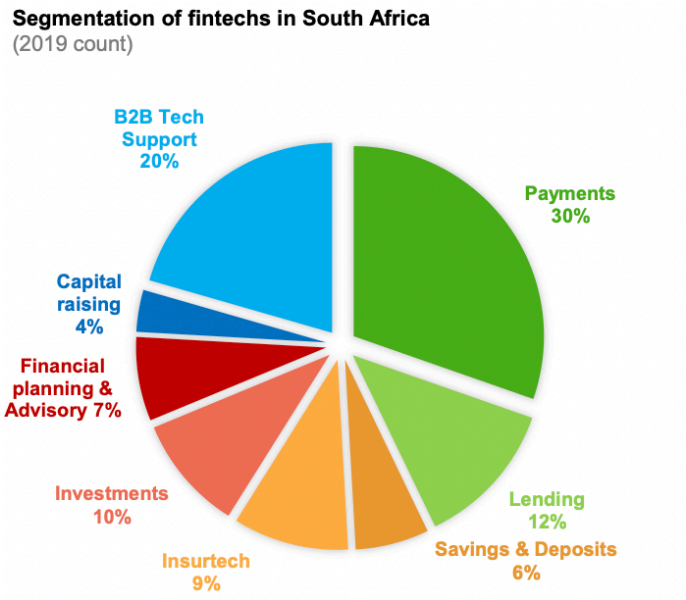



**Figure 2.2: Segmentation of Financial Technology Services in SA (Sheth, 2020)**

Fintech start-ups have surpassed traditional banks due to their ability to offer low-cost and easily accessible products and services with high efficiency and convenience. These products and services are tailored to consumers' needs based on their behaviour and data analysis. Using customer data gives fintech start-ups a competitive edge over traditional banks (Slazus & Bick, 2021).

Fintech firms have an advantage over traditional financial institutions as they can quickly adopt and implement new financial technology innovations without being hindered by legacy systems and processes. On the other hand, conventional financial institutions such as banks and insurance companies, which are regulated and risk-averse, face challenges in adopting 4IR technologies and financial technology (Mathe, 2021).

In 2019, banks like Tyme Bank have already reported having over 5 000 new customers opening accounts every week, with 4 million customers in April 2021 (Theunissen, 2021).

The threat of new entrants in the financial services industry by fintech start-ups has had banks focusing on product innovation and lowering their banking fees (Genesis Analytics, 2020).

### 2.3.2 *What literature has documented about the COVID-19 pandemic and changes in consumer behaviours and consumer acceptance to fintech?*

The South African Reserve Bank (2020) has communicated that the COVID-19 pandemic has drastically changed consumer behaviour, with an additional 30% of banking consumers now using Internet banking and 64% using one or more fintech platforms.

The pandemic has affected the global economy immensely; the strict lockdown restrictions have influenced people's daily lives, including changes in consumer behaviour, especially in retail banking (Baicu et al., 2020).

Access to financial services was one of the many challenges facing communities, especially during a crisis like the COVID-19 pandemic (Nawayseh, 2020).

Mathe (2021) explained that the COVID-19 pandemic caused significant economic disruption in various countries, leading to the closure of many companies in a short period, which had a severe negative impact on families and the overall economy of South Africa. However, the pandemic coincided with increased consumer adoption of fourth industrial revolution (4IR) technologies.

Daqar et al., (2020) identified that Gen Z and millennials were more enticed to adopt and use emerging financial technologies such as cryptocurrencies, digital payments, and mobile banking among the different age groups. “Driven by self-preservation, many organisations scurried to adopt smart applications to mitigate the devastating influence of COVID-19 on their businesses” (Servest South Africa, 2021).

A study by Baicu et al., (2020) investigated the influence of COVID-19 on customer behaviour in retail banking through an analysis in Romania. The study found that consumers in Romania had limited physical contact and reduced the use of cash due to the pandemic. Additionally, consumers were increasingly opening online banking accounts with digital-focused banks, and there was a rise in the registration of online banking accounts for small and medium-sized businesses in Romania. The use of contactless payment methods also increased.

## 2.4 Technology Acceptance Model

The Technology Acceptance Model (TAM) is a theoretical framework derived from Davis et al., (1989), that seeks to explain how individuals adopt and use technology. The TAM model has become one of the most used models in Information Systems (IS) and Information Technology (IT).

The model proposes that an individual's adoption and usage of technology are influenced by two key factors: perceived usefulness and perceived ease of use. Perceived usefulness and perceived ease of use are direct antecedents to an individual’s attitude towards using technology which will then, in turn, affect their behavioural intent to use technology (Davis et al., 1989).

Since the introduction of TAM, it has been further expanded and modified to include other variables that may influence the adoption and usage of technology.

Empirical research has identified the validity and reliability of TAM and can therefore be used as a reliable and valid model when explaining technology adoption and use (Venkatesh & Bala, 2008).

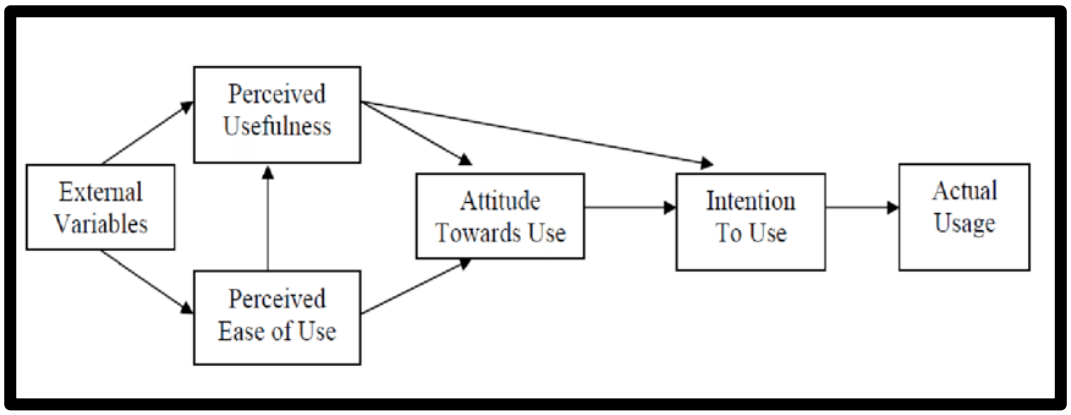



**Figure: 2.3 Original Technology Acceptance Model (Davis et al., 1989)**

In this section, the variables that will be part of the conceptual framework will be discussed, as what literature has documented about these variables regarding consumer acceptance of technology.

Behavioural intention is an essential concept in the Technology Acceptance Model and plays a significant role in identifying and predicting the user adoption and acceptance of information technology. High perceived usefulness, ease of use, and positive attitudes towards technology can lead to a higher behavioural intention, increasing the likelihood of technology use and acceptance (Hsu & Lu, 2004).

This study further extends the TAM to include user innovativeness, trust, and the perception of the COVID-19 pandemic.

The following variables will be discussed and how they relate to consumer acceptance of financial technology in the SA banking sector during the COVID-19 pandemic:

i. Perceived Usefulness (PU)
ii. Perceived ease of use (PEU)
iii. Trust (TR)
iv. Fintech Acceptance (FA)

v. Perceived Risk (PR)
vi. User Innovativeness (UI)
vii. Perception of the COVID-19 pandemic (PCOV)

### 2.4.1 *Perceived Usefulness*

Numerous empirical studies on the acceptance and adoption of IT have found that Perceived Usefulness (PU) positively influences users' intentions and use of technology (Hu et al., 2019).

PU is the extent to which a user believes that using and adopting this technology will benefit them; it was found to be the most cited and researched factor that enables financial technology adoption (Slazus & Bick, 2021).

The user's positive attitude towards the acceptance of technology will lead to a higher level of behavioural intention, which will increase the likelihood of the individual's technology use, we can therefore hypothesise PU as follows:

H1: *Users' perceived usefulness (PU) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.*

### 2.4.2 *Perceived Ease of Use*

Perceived Ease of Use (PEU) is the degree to which consumers believe using the system/technology will be easy and require minimal effort. According to Hu et al., (2019), users are more likely to be encouraged and persuaded to adopt and utilise fintech services that are user-friendly, convenient, and easy to operate.

Several findings in the literature suggest that the PEU factors have a positive influence on intention and use of technology (Shaikh et al., 2020), we can therefore hypothesise PEU as follows:

H2: *Users' perceived ease of use (PEU) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.*

### 2.4.3 *Trust*

Trust plays a significant role in accepting and adopting financial technology due to the sensitivity of the data involved in ensuring that fintech services are operational (Hu et al., 2019).

Hadad and Bratianu (2019) state that trusts in the banking services sector is typically built on customers' personal experiences, and consumer-specific factors like demographics, cultural variances, and lifestyle choices can affect how customers demonstrate their trust towards banking services.

When consumers download and install applications on their devices, they increase the risks associated with data breaches, data theft, design flaws and malware attacks (Slazus & Bick, 2021).

Trust has a direct positive influence on the adoption and acceptance of technology; we can then develop the following hypothesis on trust:

H3: *Users' trust (TRU) in fintech services positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.*

### 2.4.4 *Fintech Acceptance (FA)*

Fintech acceptance refers to the willingness of individuals and organisations to use fintech products and services. It is a multidimensional factor that involves various factors, including perceived usefulness, ease of use, trust, risk, and social influence. Several studies have investigated fintech acceptance in different contexts, including mobile banking, online payments, and peer-to-peer lending.

Previous studies have consistently found that these factors are significant predictors of fintech acceptance in various contexts, including mobile banking, online payments, and peer-to-peer lending.

*H4: Fintech Acceptance (FA) by banking consumers was accelerated by their positive Behavioural Intent (BI) to use fintech services during the COVID-19 pandemic*.

### 2.4.5 *Perceived Risk*

Studies are done concerning using fintech globally, focusing on adopting financial technology and how it is affected by the perceived risk factors that affect the intention to use financial technologies (Khuong et al., 2022).

Hu et al. (2019) have stated that perceived risk can be characterised as a type of distrust and has been identified by many researchers as the primary factor that harms the acceptance and adoption of technology.

In the case of financial technology, users consider financial and privacy risks as primary determinants when choosing whether to use Fintech services. Financial risk looks at the probability of a financial or monetary loss due to a transactional error (Lee, 2009).

Privacy risk also forms part of the perceived risk factor in looking at the risk of personal data, transactional data and other private information when choosing to adopt and use financial technology.

There has been a significant rise in cybercrime, data breaches, and data misuse. Customers must display vigilance when using digital channels to access financial technology services; SA has the third highest number of cyber security crimes compared to the rest of the world; it is estimated to cost SA R2.2 billion a year (Slazus & Bick, 2021).

There are high levels of security risk in fintech services and relatively low switching costs; it is, therefore, crucial for the consumer's trust to be built from the initial point of usage to help accelerate the acceptance and adoption of financial technology (Slazus & Bick, 2021).

The following hypothesis on perceived risk is developed about consumer acceptance:

H5: *Perceived risk (PR) will negatively influence consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.*

### 2.4.6 *User Innovativeness*

When people are comfortable with a specific subject area, they are more confident to try new things in that particular area; user innovativeness is no different in that it looks at the extent to which users are more inclined to test innovations and new technologies (Hu et al., 2019).

A high level of innovation in individuals is likely to cause a high degree of uncertainty and thus have a more positive intention and acceptance of using innovative technologies such as fintech.

Research done by Singh et al., (2020) on the “adoption behaviour of mobile payment users” suggests that when individuals have insufficient personal or prior professional knowledge and experience with technology and information systems, their personal innovation plays a role in their intention of use, thus, the following hypothesis can be derived for perceived risk:

H6: *Users’ innovativeness (UI) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.*

### 2.4.7 *Perception of the COVID-19 pandemic*

While consumers may return to old habits, post the COVID-19 pandemic, likely, some effects and changes brought about by the COVID-19 pandemic on consumer acceptance and financial technology adoption will stay with us.

Sheth (2020) describes the social and economic implications of the COVID-19 pandemic and how its unique characteristics and effects have inspired many research studies, including consumer behaviour; the perception of the pandemic has shifted consumer behaviour towards technology because of the nature of the pandemic and individuals needing to isolate to contain the spread of the virus.

The pandemic effects on the financial and banking sector intensified the adoption and usage of digital channels, digital payments, and mobile banking. The conversation around the different factors affecting consumer behaviour is one that the financial sector across the globe will need to engage in and reconsider

the various strategies to apply on a medium to long-term basis, especially in maintaining the consumer at the centre of things (Baicu et al., 2020)

This factor looks at the degree to which consumers view the current state of the pandemic and its effect on their lives. The fundamental hypothesis is that the COVID-19 crisis has also changed consumer behaviour in financial technology, so the following hypothesis can be developed:

H7: The *Perception of the COVID-19 (PCOV) pandemic positively influences Behavioural Intent (BI) towards using fintech services.*

*Table 2.1: Consumer Acceptance & Fintech Behavioural Intent*

*TAM Factors Investigated in Past Studies*

| **TAM Factor influencing consumer acceptance of Fintech Services** | **Author derived from:** |
|---|---|
| **Perceived Usefulness (PU)** | (Hu et al., 2019)<br>(Le, 2021)<br>(Lockett et al., 2020)<br>(Shaikh et al., 2020) |
| **Perceived ease of use (PEU)** | (Chang et al., 2016)<br>(Hu et al., 2019)<br>(Shaikh et al., 2020) |
| **Trust (TR)** | (Baicu et al., 2020)<br>(Hu et al., 2019)<br>(Le, 2021) |
| **Perceived Risk (PR)** | (Hu et al., 2019)<br>(Marakarkandy et al., 2016) |
| **User Innovativeness (UI)** | (Hu et al., 2019)<br>(Marakarkandy et al., 2016)<br>(Shaikh et al., 2020) |

| | |
|---|---|
| **Perception of the COVID-19 pandemic (PCOV)** | (Baicu et al., 2020)<br>(Le, 2021) |

### 2.4.8 *Technology Acceptance Model Hypotheses*

*Table 2.2: List of TAM Hypotheses (own resource)*

| | Hypotheses |
|---|---|
| H1 | Users' perceived usefulness (PU) has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic |
| H2 | Users' perceived ease of use (PEU) has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic |
| H3 | Users' trust (TRU) in fintech services has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic |
| H4 | Fintech Acceptance (FA) by banking consumers was accelerated by their positive Behavioural Intent (BI) to use fintech services during the COVID-19 pandemic. |
| H5 | Perceived risk (PR) will negatively influence the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic. |

| | |
|---|---|
| H6 | Users' innovativeness (UI) has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic |
| H7 | The Perception of the COVID-19 (PCOV) pandemic has a positive influence on Behavioural Intent (BI) towards the use of fintech services |

### 2.4.9 *Theoretical Framework*

According to Hu et al., (2019), TAM was initially intended to rectify the shortfalls of the Theory of Reasoned Action (TRA) in 1986. The TAM model defines the variables that influence individual behavioural intent and attitudes toward perceived usefulness and ease of use, directly affecting the adoption and acceptance of new technology.

The extensions made to the original TAM model will be derived from other prior studies, which include the following additional variables; trust (Baicu et al., 2020; & Hu et al., 2019), perceived risk (Abdus Salam et al., 2021; & Baicu et al., 2020; & Hu et al., 2019), user innovativeness (Hu et al., 2019; Shaikh et al., 2020) and perceived COVID-19 effect (Baicu et al., 2020; & Le, 2021) a new adopted TAM diagram with the extended factors will be used to test the behavioural intent of consumers in accepting to use fintech services in the SA banking sector during the COVID-19 pandemic.

### 2.4.10 *Conceptual Framework*

The following conceptual framework will be used in the research study to identify the critical factors explored using the TAM conceptual framework.

The conceptual framework proposed in this study is derived from the existing TAM framework by Davis et al., (1989); prior literature research was done on the

adopted factors that will be extended onto the original Technology Acceptance Model.

The arrows in the conceptual model represent the correlation between the different influencing factors, and the symbols “+” and “- “represent the positive and negative between the two factors. The numbers H1 – H7 represent the hypotheses established in the research and will be answered through the factor that the hypothesis is on.

In this study, Behavioural intent to measure consumer acceptance of fintech services will be used as the primary predictor.

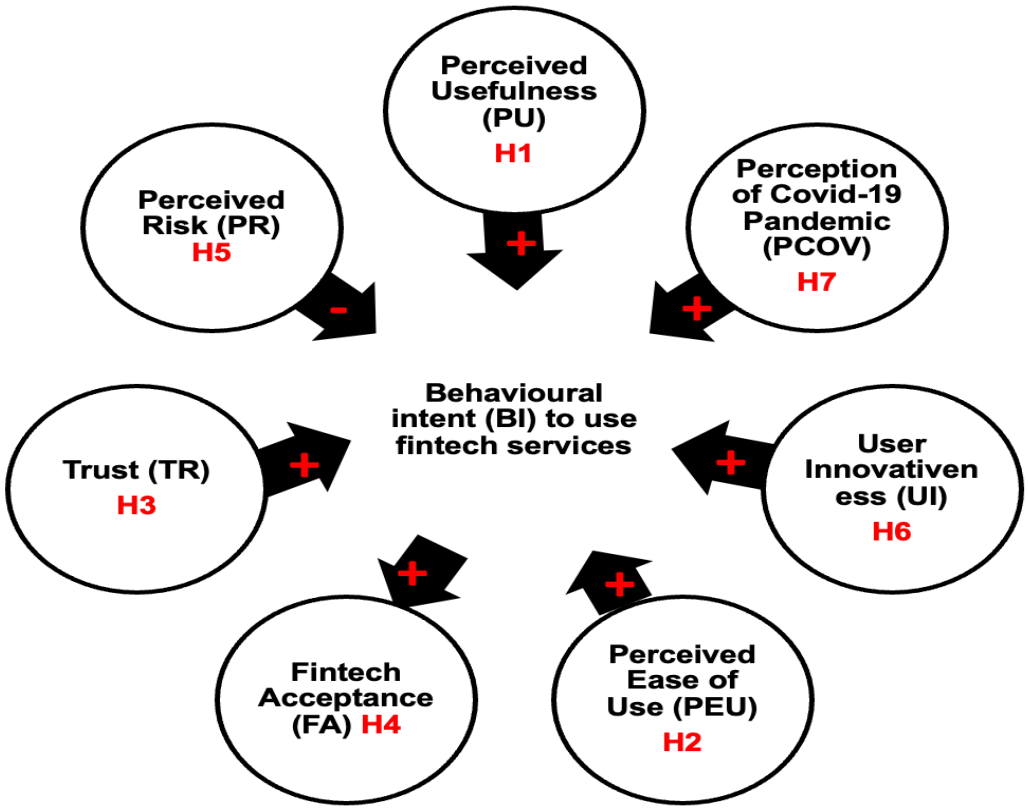



**Figure 2.4: Conceptual Model adapted using Davis et al., (1989), Chang et al., (2016), Hu et al. (2019), Marakarkandy et al., (2017)**

## 2.5 Conclusion of Literature Review

This chapter discussed the existing literature on the topic of choice. The chapter highlighted the fundamental concepts of the research and background to the fintech industry of South Africa. The chapter further highlighted the theoretical framework of TAM and its factors which then was used to derive the conceptual framework that will be used and tested in the study. Behavioural intent to measure consumer acceptance and use will be the primary predictor of actual acceptance of fintech services in SA banking during the Covid-19 pandemic.

The following chapter will discuss the research methodologies adopted in the data collection and analysis to help answer the main research question and hypotheses.

# CHAPTER 3. RESEARCH METHODOLOGY

In this chapter, the research approach, design, and methods chosen to accomplish the study will be discussed—the study's target group, population, sampling and how the data will be collected. Ethical considerations of the research will be outlined.

## 3.1 Research approach

The main research question discussed in Chapter 1 is: *What are the main factors influencing the behavioural intent of consumers to accept and use fintech services in the South African banking sector during the COVID-19 pandemic?*

The research approach used in this research study is the quantitative research approach, where a structured electronic survey was distributed to the target population and used to obtain quantitative data from South African banking consumers. This approach ensured that data could be collected directly from consumers and promptly.

The quantitative research for this study will be beneficial in that it “sets out to analyse data for trends and relationships and to verify the measurements made” using computational tools to derive results (Watson, 2015); an electronic survey will be used to collect data and computational and statistical tools like Qualtrics, SPSS and AMOS will be used to derive results from the study.

Quantitative research is appropriate for this study as data collected from the survey was used to deduce factors that influence the behavioural intention of consumers to accept and use fintech services in the SA banking sector during the COVID-19 pandemic of which using the quantitative research approach, objective conclusions can be made based on the analysed data collected.

Assumptions of using the quantitative approach are as follows:

i. When using the quantitative approach, it is assumed that reality can be deduced objectively, which can be achieved in this study through ensuring

confidentiality, anonymity is maintained, informed consent and clarification of the purpose of the survey is communicated to respondents.

ii. The goal of the quantitative approach is to develop generalisations that can contribute to the theory; these generalisations deduced from the data collected from the study can be used and measured against the chosen TAM conceptual framework to measure how it contributes back to the theory.

iii. The researcher's views are independent and do not form part of the research, as data collected from the electronic survey will be analysed as part of the research findings.

iv. The formal nature of quantitative research instruments is based on set definitions and standardised questions that are the same for all participants. This approach eliminates biases and ensures data is captured numerically and objectively analysed.

## 3.2 Research design

The electronic survey will be adopted as the overall research and study design. This method will allow data collection directly from SA banking consumers and how they have been using, accepting, and adopting fintech services during the COVID-19 pandemic.

This method will assist in answering the research questions addressed in Chapter 1 as these questions can be broken into themes that can be addressed in the survey for the respondents to either rate using some form of a scale or through close-ended questions.

A Cross-sectional survey method will be used as the data intended for collection from SA banking consumers will be collected at a given point to evaluate the variables and factors during the COVID-19 pandemic.

The advantages of the survey research design are:

i. Objectivity will be maintained as the anonymity and confidentiality of participants will be a priority and achieved through the type of survey questioning that will be asked.
ii. The researcher is independent and does not influence the world or outcome of the research; when respondents answer questions, those answers will be analysed, and conclusions will be drawn from that analysis.
iii. Having access to a large population and the ability to gather large amounts of data that can be tested against existing theories, responses can be received across all banking consumers from different demographics.
iv. This method can be developed quickly and requires no personal or physical contact with respondents.
v. It is also cost-effective as the administering of the survey can be done electronically.

The disadvantage of the survey research design:

i. There is always a risk that not all respondents will be honest and provide accurate answers due to the anonymous nature of the survey and the questions asked.
ii. Not all questions may receive responses.
iii. Literacy and accessibility to the survey may be limited to some participants.
iv. The lack of in-depth insights about other factors can create a sense of bias.
v. Obtaining enough responses for data analysis

Participants can complete and submit their surveys at their own pace and convenience.

## 3.3 Data collection methods

This research study used an electronic survey to obtain data relevant to the research's objective and research questions.

The electronic survey was created on Qualtrics, which then a link was generated and distributed online over multiple social networks such as LinkedIn, WhatsApp, Instagram, and Twitter.

A disclaimer of informed consent was attached as part of the survey where the details about the study were stipulated, the respondent's voluntary consent was detailed and an option for them to opt out at any given time.

This data collection method gathered a large amount of data and answered the research questions. The online questionnaire had no geographic limitation and could be distributed from one platform to another, increasing the scope of the questionnaire and participants as there is a large and diverse population on the chosen social network sites.

## 3.4 Population and sample

In this section, the population and sample of the study will be determined as the justifications for these methods and populations studied.

### 3.4.1 *Population*

The population was SA banking consumers on social network sites such as LinkedIn, Twitter, WhatsApp, and Instagram, where the link was distributed in multiple posts.

This population will be very beneficial for the study in that an assumption can be made that it being social media or network users, there is already a specific literacy and competency level expected, so this may help in curbing the literacy and accessibility disadvantage as they may not struggle in comprehension and understanding of the survey questions.

### 3.4.2 *Sample*

The target population was active SA banking consumers aged 18 and above using South African banks for their financial services and needs; the first question

in the survey verified that respondents must be above 18 and were residents of SA.

The number of survey links and posts on social media sites was not limited to a certain number as we wanted to get responses from many individuals we could target from the overall population.

The targeted survey questionnaire respondents required will be based on the number of variables/factors we are measuring; as we had eight variables/hypotheses to measure, a minimum of 80 responses would have been sufficient to ensure we have at least ten observations per variable identified in the study using the factors described by TAM and other social factors (Field, 2013).

As a result, 156 responses were received.

### 3.4.3 *Sampling method*

The probability sampling method will be used as each participant who clicked on the survey link shared will be given an equal opportunity to be selected through a random sampling process.

The data will then be analysed, looking into the sample frame of SA banking consumers using SA banking channels and platforms during the COVID-19 pandemic. This method was appropriate as we were collecting data from all respondents and then analysing the data collected based on random sampling to give everyone a fair chance to participate.

## 3.5 The research instrument.

The data collection instrument is an electronic survey shared on multiple social network sites via a link allowing individuals to complete the survey.

The survey questions included closed-ended questions and used of five-point Likert scaling method to measure the behaviour, knowledge, use and attitudes of SA banking consumers and their acceptance of fintech services during the

COVID-19 pandemic; the TAM factors questions were adapted and derived from prior studies, many of these questions had already been established and tested for their reliability and validity.

Using an electronic survey distributed on social media sites as a form of data collection allows us to reduce time and other resource constraints encountered during data collection.

The conceptual, theoretical framework used will be the Technology Acceptance Model, the model will be adapted, and the following research questions/hypotheses will be answered:

Main Question: ***What are the main factors influencing the behavioural intent of consumers to accept and use fintech services in the South African banking sector during the COVID-19 pandemic?***

Sub Questions:

i. What is the relationship between behavioural intent and perceived ease of use?
ii. Does trust positively influence behavioural intent to use fintech services?
iii. What is the relationship between behavioural intent and perceived usefulness?
iv. What is the relationship between behavioural intent and user innovativeness?
v. Does perceived risk negatively influence behavioural intent?
vi. Does behavioural intent influence fintech acceptance?
vii. What financial technologies are consumers using to fulfil their banking/financial needs/services?
    - Before COVID-19
    - During COVID-19

The survey consisted of the following sections:

Section A Demographic & Business Background information

Section B COVID-19 Pandemic, Consumer Behaviours, and Use of Fintech Services in Banking

Section C Technology Acceptance Model Factors

## 3.6 Procedure for data collection

The following steps will be the steps that will be carried out to ensure the data collection procedure is completed:

**Step 1:** Design the research instrument (survey questions) on Qualtrics ensuring all variables that must be measured are addressed in the questioning using research questions/hypotheses, theoretical frameworks, and literature review.

**Step 2:** Conduct a small pilot test run of the survey to identify if there are any possible problems with the research design or instrument by ensuring the following:

- The survey is structured and organised logically.
- The information provided about the study is accurate and transparent.
- The survey is easy to access and follow.
- The survey details are reported so that the research can be replicated.
- The survey duration time was also established to ensure it does not take long to complete (This research study survey took an average of 6.5 minutes)

A pilot test was conducted on 9 Wits Business School peers and one research supervisor, and the insights gathered from this resulted in amendments to some of the measurement items.

**Step 3:** Generate Qualtrics survey link to distribute across multiple social media sites for participants to complete.

**Step 4:** Set a time frame of when the survey will open and close to ensure enough time is allocated to collect enough responses. Data collection for this study commenced September 2022 – November 2022.

**Step 5:** Time was scheduled weekly for post reminders and story reminders for the survey to be sent out to encourage and get more people to participate in the study; weekly posts were done every Monday & Friday between 11:00 – 13:00

**Step 6:** Once the sample population response number was achieved, the survey was closed, and the data was then exported from Qualtrics to SPSS, Excel, and AMOS for data analysis.

## 3.7 Data analysis strategies and interpretation

### 3.7.1 *Structural Equation Model (SEM)*

The analysis method used for this study was Structural Equation Modelling (SEM), a statistical technique commonly used in research for data analysis. SEM allows researchers to test complex theoretical models by estimating the relationships between variables, and it provides a comprehensive framework for analysing both measurement and structural models.

Bollen and Long (1993) state that the main strength of SEM is its ability to handle multiple variables and their relationships, allowing researchers to test complex theories.

SEM provides a more efficient way to test hypotheses simultaneously and assess the fit-ness of the model, which aids in the reduction of false positives (Browne & Cudeck, 1993).

### 3.7.2 *Common Method Variance (CMV) & Confirmatory Factor Analysis (CFA)*

Harman's single-factor test will be used to examine the CMV issue. In addition, Podsakoff et al. (2003) recommend conducting confirmatory factor analysis

(CFA) for two models; with and without the common latent factor will be followed the difference between all factor loadings in the two models should be below 0.2.

According to Statistics Solutions (2013), CFA as a measuring tool is used to confirm or reject the measurement theory, a sample size of (n>200) is needed, correct use of an initial conceptual framework such as TAM in this study and the data must be from a random sampling method.

CMV can be a valuable tool in data analysis. For example, CMV can help to identify the underlying structure of data, highlight inter-relationships between variables, and improve the accuracy of measures (Spector, 2006). Additionally, CMV can be used to control for methodological variance and improve the validity and reliability of data.

CFA is a flexible tool that can be used to test a wide range of models, from simple to complex, and it can be applied to both cross-sectional and longitudinal data. CFA can also be used with other statistical methods, such as mediation or moderation analysis, to examine the relationships among variables and test theoretical hypotheses.

## 3.8 Possible limitations and challenges of the study

The following weaknesses or limitations can be identified and anticipated from the study:

- Due to the type of research instrument used, there is a high risk for people not to answer truthfully or to just answer the survey as a tick box exercise and not one that people critically apply themselves to.
- Due to the nature of our data subjects and respondents, there is an identified complexity in human experiences that may require more work to rule out or control all variables in the study.
- The survey method may fail to help us capture and consider people's unique ways of expressing and interpreting their experiences.
- The population target may be an incomplete representation of the sample needed to answer the research questions.

- Receiving enough data responses from the identified sample in the stipulated time frame
- The COVID-19 pandemic factor in the study may pose some challenges as lockdown regulations and restrictions mainly determined consumer behaviour, and there may be insufficient data points on this matter from the data responses.

## 3.9 Quality Assurance

In this section, the internal and external reliability and validity of the study will be determined. Validity refers to the accuracy of a measure, such as the population and sample measure; reliability assesses the consistency of the research instrument results.

Using SPSS, Cronbach's Alpha method will be used to measure internal consistency into how closely related the factors and variables of behavioural intent to consumer acceptance of fintech services in SA banking during the COVID-19 pandemic (Acharjee, 2021).

When Cronbach's alpha coefficient is determined to be greater than 0.7, the scale's reliability is high. The survey is deemed reliable; however, if Cronbach's alpha coefficient is lower than 0.6, it can be suggested that the scale's reliability is low, and the survey is unreliable (Acharjee, 2021).

A breakdown of each variable's Cronbach's Alpha coefficient will be discussed in Chapter 4.

### 3.9.1 *External validity*

About the research study, the external validity depends on the nature and degree to which the sample represents the population. The target sample of SA banking consumers using SA banking channels and platforms during the COVID-19 pandemic implies a high external validity as the random sampling method was used to get responses from the diverse pool of social network accounts. The

findings can be easily replicated and generalised by changing the sample, and outcomes can be applied to practical situations (Cuncic, 2021).

### 3.9.2 *Internal validity*

The research study meets the internal validity criteria to some extent in that due to the Informed consent nature of the survey; respondents are allowed to leave the study should they wish so voluntarily; this can result in partial data as only the sample data of those who completed the survey will be used, maximising the internal validity in this aspect will be done through ensuring the total sample number of 80 surveys needed for data analysis are checked for completeness before the closing of the study to ensure we have at least 80 complete responses (Cuncic, 2021).

The random sampling method ensures that we have a random sample of our population, creating a high internal validity. The use of the TAM model and other factors to measure the relationship between the behavioural intent of consumers to accept and use fintech services through the use of Convergent validity creates a high internal reality in that it looks at the degree or relationship of two measures and how related these measures are (Cuncic, 2021).

### 3.9.3 *Reliability*

The research study meets the reliability criteria as the same survey can be used with different sample sizes and can be replicated; however, external factors such as sample group mood, personal biases, and human error may affect the reliability of the research; what can be done to help maximise the reliability is to review the quality of the collected data thoroughly to identify any errors and to ensure the survey is not long and tedious that it may cause respondents to answer for the sake of completing (Indeed, 2021).

## 3.10 Ethical considerations

Several potential risks can be associated with research studies, especially studies involving human participants. A participation consent letter was included in the electronic survey detailing the ethical consideration of the participant (see Appendix B). An ethical clearance letter was obtained from the Wits Business School Ethics Committee (see Appendix D) to ensure clearance was provided for the researcher to conduct their investigation.

In the research study, the following was achieved to ensure ethical considerations are exercised:

### 3.10.1 *Summary of risk*

The identified risk level of the research study is Low Risk as the questions asked were about people's everyday life activities and opinions; this included demographic and biographical information; the type of questions asked required a recall of past events about their fintech services used during the COVID-19 pandemic, the questioning was kept at this level to ensure the study is within the identified ethical risk level communicated.

### 3.10.2 *Formal Permission*

Formal permission and clearance of the proposal and for data collection to commence was obtained from WBS Ethics Committee to ensure ethical clearance was obtained.

### 3.10.3 *Data Collection*

The research instrument used to collect data was an online survey, using a quantitative approach and random sampling to ensure a fair chance is given to all participants.

Demographic data regarding the participant's gender, race, ethnic group, educational background etc., will be used to identify and report on the descriptive

data analysis of the sample so that we can compare our data sample based on any trends and relationships identified using the demographics data.

No questions were asked that did not pertain directly to the project objectives.

### 3.10.4 *Research Participants*

Research participants will be social media (LinkedIn, Twitter, Instagram, and WhatsApp) platform uses participants who will click on the survey link shared on these social network sites; users must be 18 years and older, and the sample size is a minimum of 80 survey responses.

### 3.10.5 *Informed Consent*

Potential participants have shared a survey link via social network sites such as LinkedIn; there were no incentives for participants, and informed consent was obtained electronically on the first page, where the study's details and purpose were documented.

Where formal written consent (or electronically) could not be obtained, the data was not used as part of the study.

### 3.10.6 *Protecting Identities*

Confidentiality and anonymity were maintained as the survey did not require participants to enter any identifiable information such as their name or contact details, the data collected was and will only be used for this research study and will be kept confidential from other users and researchers, and only the overall results will be documented on the report.

### 3.10.7 *Protection of Data*

Data collected during the study were protected using end-to-end encryption and password protection that only the researcher had access to unlock.

Upon completion of the research study, the data will be stored for three years after the date of project completion for future analysis in Doctoral studies, and consent on this will be asked from participants to ensure they are aware of this data retention policy.

After three years have elapsed, the data will be destroyed.

## 3.11 Proposed schedule and timelines

The following is the scheduled timeline of the project as adapted from the MMDB Research Methodology 2022 Course Pack.

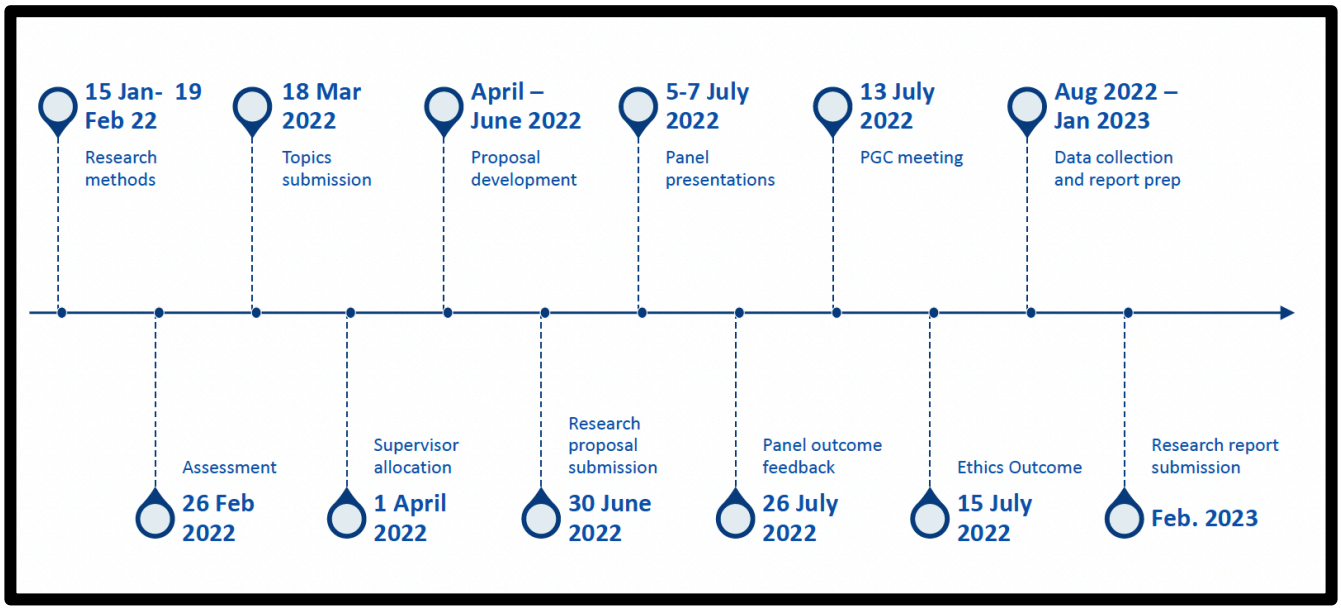



**Figure 3: Proposed Research Report Timeline**

# CHAPTER 4. PRESENTATION OF RESULTS

## 4.1 Introduction

In this chapter, we will discuss the analysis of the data collected, which will include a description of the sample, descriptive analytics, a breakdown of the results for each hypothesis, the results of the measurement model analysis, and the results of the structural model analysis.

## 4.2 Descriptive Analysis

This section discusses the demographic details of the research, where Age, Gender, Educational background, Employment status, Geographical location, and what SA bank each participant use.

### 4.2.1 *Sample Description*

The survey had 168 responses; only 156 were analysed; the remaining 12 were excluded due to data missing, and some needed to match the conditions to proceed to the survey items, as consent was required to be signed. Only SA banking consumers above 18 were allowed to participate in the survey.

In Table 4.1, the details of the demographics of the analysed sample are listed. The demographics data revealed that most of the respondents from the sample were female; females were 66 % of respondents, 27% were male, 1% were non-binary, and the remainder 6% preferred not to state their gender.

Sixty-nine per cent of the respondents were between the ages of 25 and 34, with 44% having a postgraduate degree or higher, with 69 per cent being employed.

Most of the survey respondents were in Gauteng 56 per cent, with most of the respondents using Standard Bank as their primary bank of choice 28 per cent.

*Table 4.1: Demographics*

| | | FREQUENCY | PERCENTAGE |
|---|---|---|---|
| **AGE** | 18 - 24 years | 14 | 8,97% |
| | 25 – 34 years | 107 | 68,59% |
| | 35 – 44 years | 16 | 10,26% |
| | 45 – 54 years | 6 | 3,85% |
| | 55 – 64 years | 10 | 6,41% |
| | +65 years | 3 | 1,92% |
| | **Total** | **156** | **100%** |
| **GENDER** | Prefer Not to Say | 9 | 5,77% |
| | Non/Binary Gender | 2 | 1,28% |
| | Female | 103 | 66,03% |
| | Male | 42 | 26,92% |
| | **Total** | **156** | **100%** |
| **EDUCATION LEVEL** | No Schooling Completed | 2 | 1,28% |
| | Matric Certificate | 12 | 7,69% |
| | Diploma | 21 | 13,46% |
| | Bachelor's Degree | 48 | 30,77% |
| | Postgraduate & Higher | 68 | 43,59% |
| | Prefer Not to Say | 5 | 3,21% |
| | **Total** | **156** | **100%** |
| **EMPLOYMENT STATUS** | Unemployed | 11 | 7,05% |
| | Student | 12 | 7,69% |
| | Employed | 107 | 68,59% |
| | Self Employed | 18 | 11,54% |
| | Prefer Not to Say | 8 | 5,13% |
| | **Total** | **156** | **100%** |
| **GEOGRAPHICAL LOCATION IN SA** | Eastern Cape | 4 | 2,6% |
| | Free State | 1 | 0,6% |
| | Gauteng | 88 | 56,4% |
| | Kwa-Zulu Natal | 3 | 1,9% |
| | Limpopo | 5 | 3,2% |
| | Northern Cape | 2 | 1,3% |
| | North West | 4 | 2,6% |
| | Mpumalanga | 44 | 28,2% |
| | Western Cape | 5 | 3,2% |
| | **Total** | **156** | **100,0%** |
| | | | |

| | | | |
|---|---|---|---|
| **SA BANK USED** | ABSA | 15 | 9,6% |
| | Capitec | 27 | 17,3% |
| | First National Bank | 41 | 26,3% |
| | Discovery Bank | 3 | 1,9% |
| | Nedbank | 12 | 7,7% |
| | Standard Bank | 44 | 28,2% |
| | Other | 14 | 9,0% |
| | **Total** | **156** | **100,0%** |
| **JOB OCCUPATION DIVIDED INTO JOB SECTORS** | Information Technology | 29 | 27,62% |
| | Education/ Training | 8 | 7,62% |
| | Engineering/Architecture | 8 | 7,62% |
| | Legal | 8 | 7,62% |
| | Finance/Accounting/Auditing | 10 | 9,52% |
| | Sales & Marketing | 10 | 9,52% |
| | Healthcare & Medicine | 7 | 6,67% |
| | Admin / Office Support | 5 | 4,76% |
| | Management | 13 | 12,38% |
| | Service & Hospitality | 3 | 2,86% |
| | Other | 4 | 3,81% |
| | Total | **105** | **100,00%** |

**Figure 4.1 Comparison between Exposure & Usage of Fintech Services Before & During the COVID-19 Pandemic in SA**

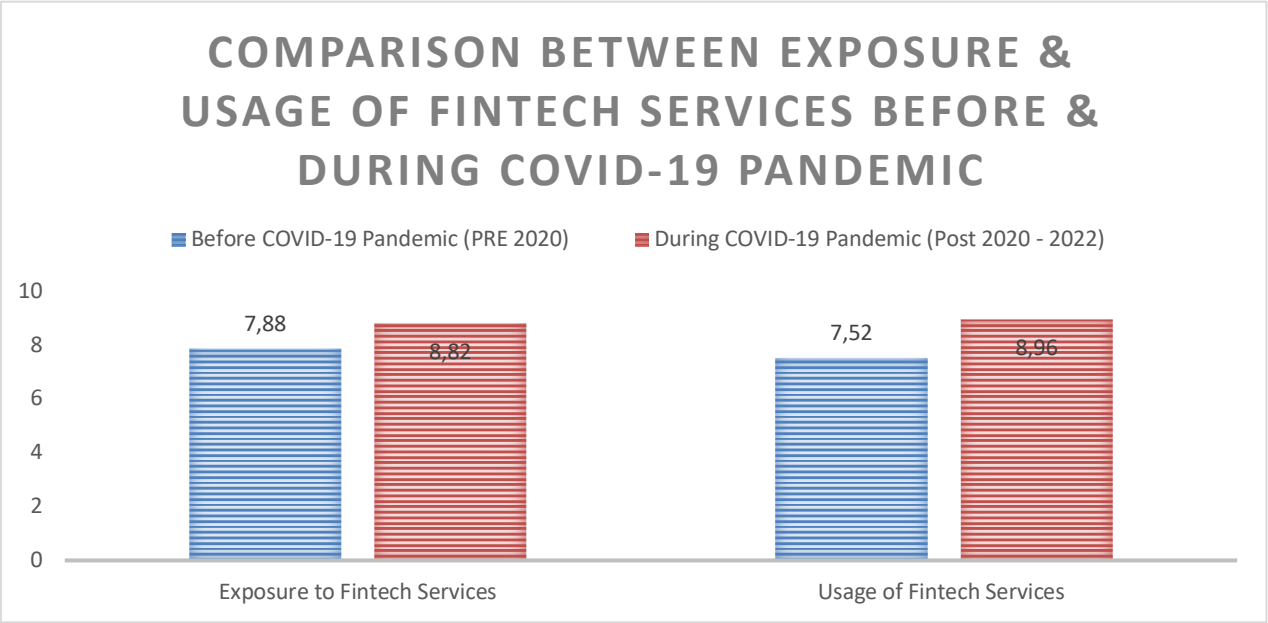



Figure 4.1 illustrates that out of 156 SA respondents, there was a slight increase in the exposure and usage of fintech services before and during the pandemic, with more users rating their exposure and use of fintech more during the pandemic (post-2020 – 2022) than before the pandemic (pre-2020).

Figure 4.2 below illustrates that most respondents did not physically visit a bank branch during the pandemic, where 64% said No; however, 44 (28%) respondents visited a banking branch, and 8% did not answer this question.

Figure 4.3 below illustrates that out of the 28% of respondents that went into the branch, the highest number of branch visits were attributed to consumers needing to collect their banking cards, with 23 respondents, followed by Savings and New Account Application Enquiries at nine respondents, respectively.

**Figure 4.2 Responses based on those who physically visited a banking branch during the pandemic.**

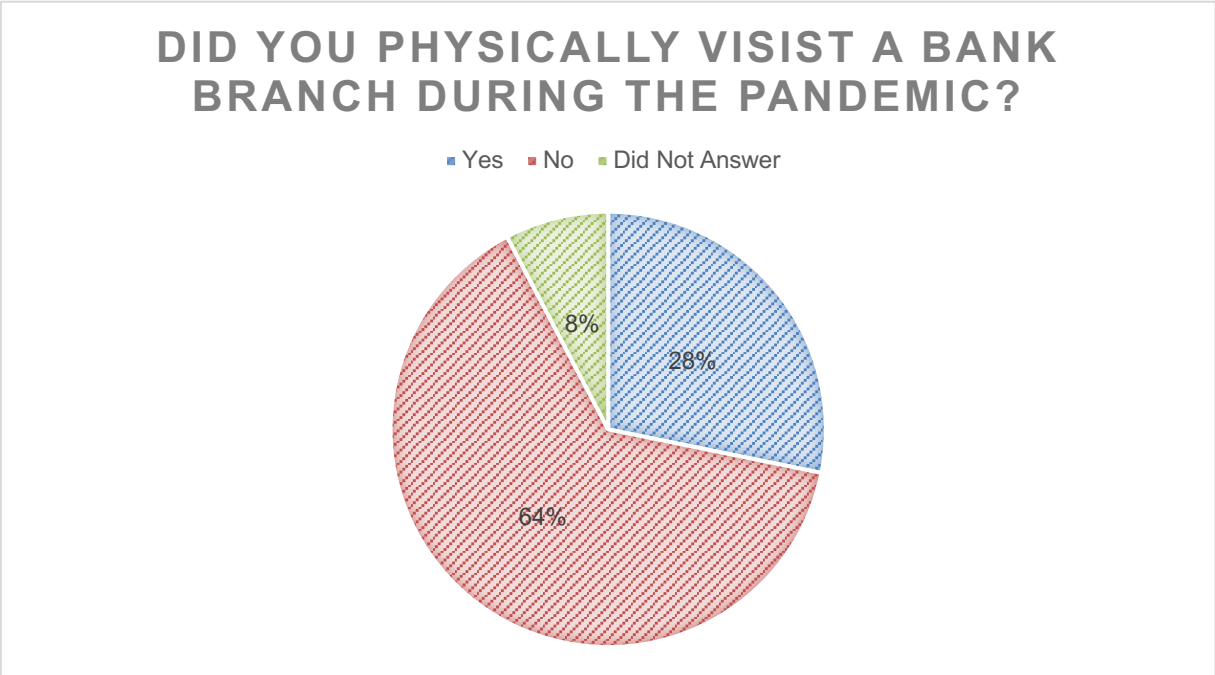



**Figure 4.3 Respondents who visited the branch physically and banking services they went into the branch for.**

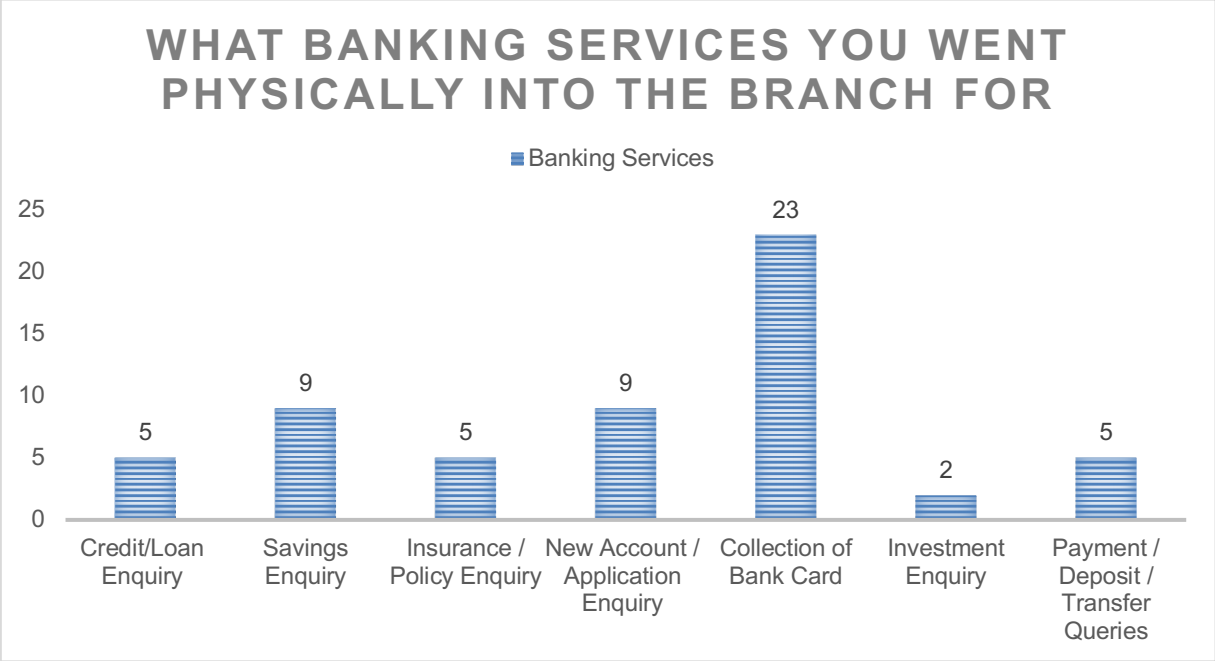
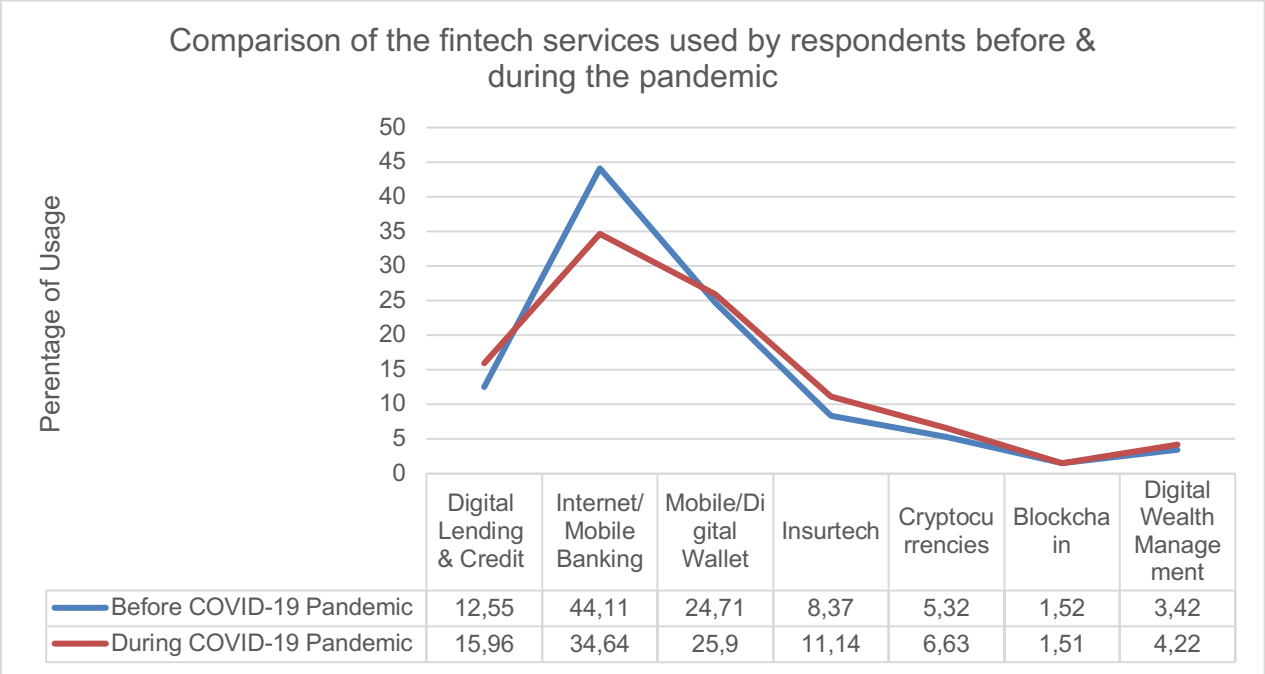


Figure 4.4 below compares the type of fintech services used by respondents before the COVID-19 pandemic (pre-2020) and during the COVID-19 pandemic (Post 2020 – 2022); respondents were asked to choose their top 3 fintech services.

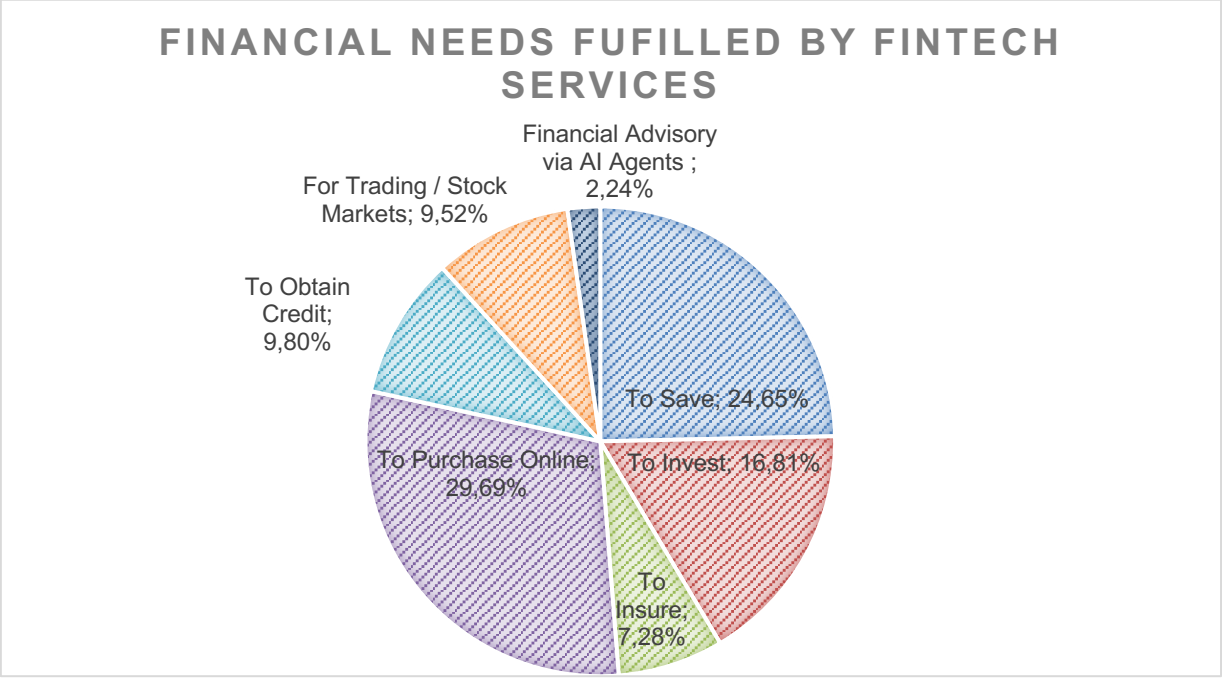
**Figure 4.4 Comparison of the fintech services used by respondents before & during the pandemic.**




| | Digital Lending & Credit | Internet/ Mobile Banking | Mobile/Digital Wallet | Insurtech | Cryptocurrencies | Blockchain | Digital Wealth Management |
|---|---|---|---|---|---|---|---|
| Before COVID-19 Pandemic | 12,55 | 44,11 | 24,71 | 8,37 | 5,32 | 1,52 | 3,42 |
| During COVID-19 Pandemic | 15,96 | 34,64 | 25,9 | 11,14 | 6,63 | 1,51 | 4,22 |

Figure 4.5 below illustrates the different financial needs that respondents are primarily using fintech services for; respondents were asked to choose the top 3 financial needs fulfilled by fintech services; purchasing online was the highest financial need at 29,7%, with Saving and Investing at 24,7% and 16,9% respectively.

**Figure 4.5 Financial needs fulfilled by fintech services.**




## 4.3 Measurement Instrument Assessment

This section will discuss the analysis of the results based on the reliability and validity of the instrument used to measure the assessment. The research variables were measured using a five-point Likert scale.

The variables of the study were measured in different numbers of items, as listed below:

i. Perceived Usefulness was measured with three items (PU1-PU3)
ii. Perceived Ease of Use was measured with four items (PEU1 – PEU4)
iii. Trust was measured with three items (TR1-TR3)

iv. Behavioural Intent was measured in 3 items (BI1-BI3)

v. Perceived Risk was measured in 3 items (PR1 – PR3)

vi. User Innovativeness was measured in 4 items (UI1-UI4)

vii. Perception of COVID-19 was measured in 3 items (PCov1-PCov3)

viii. Fintech Acceptance was measured in 4 items (FA1-FA4)

Table 4.2 below illustrates the accuracy analysis statistics, which include the mean, standard deviation, composite reliability measurements, convergent validity measurements and factor loadings.

*Table 4.2 Accuracy Analysis Statistics*

| Research Construct | | Descriptive Statistics | | | | Cronbach's Test | | Composite Reliability (C.R) Value | AVE Value | Factor Loading |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean Value | | Standard Deviation | | Item-total | α value | | | |
| PU | PU1 | 13,93 | 14,083 | 1,339 | 1,301 | 0,832 | 0,877 | 0,828 | 0,409 | 0,822 |
| | PU2 | 13,99 | | 1,306 | | 0,766 | | | | 0,872 |
| | PU3 | 14,33 | | 1,258 | | 0,875 | | | | 0,649 |
| PEU | PEU1 | 9,08 | 9,188 | 1,050 | 1,098 | 0,921 | 0,936 | 0,925 | 0,755 | 0,853 |
| | PEU2 | 9,36 | | 1,107 | | 0,910 | | | | 0,905 |
| | PEU3 | 9,06 | | 1,136 | | 0,914 | | | | 0,853 |
| | PEU4 | 9,25 | | 1.085 | | 0,921 | | | | 0,864 |
| TR | TR1 | 8,66 | 8,660 | 1,055 | 0,991 | 0,864 | 0,878 | 0,830 | 0,621 | 0,683 |
| | TR2 | 8.93 | | 1,028 | | 0,788 | | | | 0,857 |
| | TR3 | 8.72 | | 0,890 | | 0,829 | | | | 0,815 |
| BI | BI1 | 8,89 | 9,060 | 1,203 | 1,089 | 0,664 | 0,806 | 0,787 | 0,552 | 0,763 |
| | BI2 | 9,42 | | 0,940 | | 0,814 | | | | 0,745 |
| | BI3 | 8,87 | | 1,125 | | 0,697 | | | | 0,721 |
| PR | PR1 | 8,52 | 8,583 | 0,980 | 0,963 | 0,724 | 0,804 | 0,794 | 0,563 | 0,767 |
| | PR2 | 8,61 | | 0,973 | | 0,704 | | | | 0,776 |
| | PR3 | 8,62 | | 0,935 | | 0,765 | | | | 0,707 |
| UI | UI1 | 8,58 | 8,910 | 1,223 | 1,079 | 0,599 | 0,747 | 0,748 | 0,429 | 0,680 |
| | UI2 | 8,14 | | 1,342 | | 0,696 | | | | 0,537 |
| | UI3 | 9,55 | | 0,802 | | 0,716 | | | | 0,740 |
| | UI4 | 9,37 | | 0,947 | | 0,722 | | | | 0,647 |
| PCOV | PCOV1 | 9,31 | 9,230 | 1,053 | 1,101 | 0,711 | 0,785 | 0,834 | 0,629 | 0,749 |
| | PCOV2 | 9,15 | | 1,096 | | 0,569 | | | | 0,905 |
| | PCOV3 | 8.87 | | 1,153 | | 0,307 | | | | 0,713 |
| FA | FA1 | 9,32 | 9,343 | 0,915 | 0,886 | 0,716 | 0,808 | 0,766 | 0,455 | 0,782 |
| | FA2 | 9,04 | | 1,072 | | 0,830 | | | | 0,516 |
| | FA3 | 9,60 | | 0,749 | | 0,750 | | | | 0,694 |
| | FA4 | 9,41 | | 0,807 | | 0,745 | | | | 0,680 |

Key: PU = Perceived Usefulness; PEU = Perceived Ease of Use; TR = Trust; BI = Behavioural Intention; PR = Perceived Risk; UI = User Innovativeness; PCOV = Perception of COVID-19; FA = Fintech Acceptance

### 4.3.1 *Reliability Testing*

The measurement scale's reliability of the results was assessed using the following reliability tests:

i. Cronbach Alpha Coefficient

ii. Composite Reliability

#### *4.3.1.1 Cronbach Alpha Coefficient*

The Cronbach Alpha Coefficient is a statistical measure used to assess the internal consistency of a scale or questionnaire. It is calculated as the average of all possible split-half reliability coefficients for a given scale. The coefficient ranges from 0 to 1, with higher values indicating greater internal consistency. 0.7 or above is generally considered acceptable for research purposes (Streiner, 2003).

According to Bland and Altman (1997), the Cronbach Alpha Coefficient is used across the literature to measure the internal consistency of the measurement items. It helps evaluate a scale's reliability and identify problematic items needing removal or amendment.

Cronbach (1951) described the coefficient to measure the degree to which items on a scale are related to each other and how well they measure the same underlying factors. This measure of internal consistency is essential when developing scales to ensure that they are valid and reliable measures of the factors they are designed to assess.

The lowest Cronbach coefficient was 0.747 (UI), and the highest was 0.936 (PEU); the remaining values ranged from 0.785 to 0.878; the values of the coefficients exceeded the 0.7 mentioned in the literature; therefore, this means that the measurement items can be validated to be reliable, Table 4.2 indicates the Cronbach Coefficients for each factor.

#### *4.3.1.2 Composite Reliability (CR)*

Composite reliability, like Cronbach's alpha coefficient, is used to identify internal consistency. CR is more suitable for assessing reliability when the number of items in the scale is relatively small (Raykov, 1997). It is calculated using a confirmatory factor analysis (CFA) model that estimates the proportion of the total variance in the observed variables accounted for by the underlying factors (Diamantopoulos & Siguaw, 2006).

The composite reliability can be calculated using software packages such as AMOS. The coefficient ranges from 0 to 1, with higher values indicating greater internal consistency. A value of 0.7 or above is generally considered acceptable for research purposes.

Diamantopoulos and Siguaw (2006) argue that composite reliability is a more accurate measure of internal consistency than Cronbach's alpha because it considers the scale's factor structure. It is also less sensitive to measurement error and more suitable for structural equation modelling (SEM) analyses.

The CR values, as depicted below in Table 4:3, are between 0,748 and 0.925, which, based on the acceptable value for research purposes of 0.7, is exceeded, validating that the measurement items are reliable.

*Table 4.3 Composite Reliability Estimates*

| | | | | Composite reliability (CR) | | | |
|---|---|---|---|---|---|---|---|
| | | | | | summation of error terms | | CRη=(Σλyi)2/[(Σλyi)2+(Σεi)] |
| | | | Estimate | (∑λYi)² | éi | ∑éi | CR |
| PU | <--- | PU1 | 0,822 | 5,490 | 0,324 | 1,143 | 0,828 |
| | <--- | PU2 | 0,872 | | 0,240 | | |
| | <--- | PU3 | 0,649 | | 0,579 | | |
| PEU | <--- | PEU1 | 0,853 | 12,076 | 0,272 | 0,979 | 0,925 |
| | <--- | PEU2 | 0,905 | | 0,181 | | |
| | <--- | PEU3 | 0,853 | | 0,272 | | |
| | <--- | PEU4 | 0,864 | | 0,254 | | |
| TR | <--- | TR1 | 0,683 | 5,546 | 0,534 | 1,135 | 0,830 |
| | <--- | TR2 | 0,857 | | 0,266 | | |
| | <--- | TR3 | 0,815 | | 0,336 | | |
| BI | <--- | BI1 | 0,763 | 4,968 | 0,418 | 1,343 | 0,787 |
| | <--- | BI2 | 0,745 | | 0,445 | | |
| | <--- | BI3 | 0,721 | | 0,480 | | |
| PR | <--- | PR1 | 0,767 | 5,063 | 0,412 | 1,310 | 0,794 |
| | <--- | PR2 | 0,776 | | 0,398 | | |
| | <--- | PR3 | 0,707 | | 0,500 | | |
| UI | <--- | UI1 | 0,680 | 6,781 | 0,538 | 2,283 | 0,748 |
| | <--- | UI2 | 0,537 | | 0,712 | | |
| | <--- | UI3 | 0,740 | | 0,452 | | |
| | <--- | UI4 | 0,647 | | 0,581 | | |
| PCOV | <--- | PCOV1 | 0,749 | 5,603 | 0,439 | 1,112 | 0,834 |
| | <--- | PCOV2 | 0,905 | | 0,181 | | |
| | <--- | PCOV3 | 0,713 | | 0,492 | | |
| FA | <--- | FA1 | 0,782 | 7,140 | 0,388 | 2,178 | 0,766 |
| | <--- | FA2 | 0,516 | | 0,734 | | |
| | <--- | FA3 | 0,694 | | 0,518 | | |
| | <--- | FA4 | 0,680 | | 0,538 | | |

Key: PU = Perceived Usefulness; PEU = Perceived Ease of Use; TR = Trust; BI = Behavioural Intention; PR = Perceived Risk; UI = User Innovativeness; PCOV = Perception of COVID-19; FA = Fintech Acceptance

### 4.3.2 *Validity Testing*

The measurement instruments used for validity were through observing:

i. Factor Loadings

ii. Correlation Matrix
iii. Average Value Extracted

Below, the results of each measurement instrument will be outlined.

#### *4.3.2.1 Convergent Validity: Factor Loadings*

Convergent validity is a type of construct validity that examines the degree to which two measures of the same construct are related (Campbell & Fiske, 1959). It is assessed by examining the correlation between the scores of the measures. Higher correlations between the scores of the bars indicate higher convergent validity.

Factor loadings are a vital component of factor analysis, used to determine the underlying structure of a set of measures. Factor loading is the correlation between an observed variable and the underlying factor. Higher factor loadings indicate a stronger relationship between the observed variable and the factor.

Convergent validity is demonstrated when the factor loadings of the measures are high (Hair et al., 2010). According to Hair et al., (2010), factor loadings of 0.5 or above are considered acceptable. This indicates that the observed variable measures the underlying construct to a reasonable degree.

Illustrated below in Table 4.4, all the factor loadings were above 0.5, considered an acceptable value as per literature; these factor loadings support the convergent validity of all the measurement instrument items.

*Table 4.4 Factor Loading Estimate*

| Research Construct | | | Factor Loadings |
|---|---|---|---|
| BI1 | <--- | BI | 0,763 |
| BI2 | <--- | BI | 0,745 |
| BI3 | <--- | BI | 0,721 |
| FA1 | <--- | FA | 0,782 |
| FA2 | <--- | FA | 0,516 |
| FA3 | <--- | FA | 0,694 |
| FA4 | <--- | FA | 0,68 |
| PEU1 | <--- | PEU | 0,853 |
| PEU2 | <--- | PEU | 0,906 |
| PEU3 | <--- | PEU | 0,853 |
| PEU4 | <--- | PEU | 0,864 |
| PCOV1 | <--- | PCOV | 0,749 |
| PCOV2 | <--- | PCOV | 0,905 |
| PCOV3 | <--- | PCOV | 0,713 |
| PR1 | <--- | PR | 0,767 |
| PR2 | <--- | PR | 0,776 |
| PR3 | <--- | PR | 0,707 |
| PU1 | <--- | PU | 0,822 |
| PU2 | <--- | PU | 0,872 |
| PU3 | <--- | PU | 0,649 |
| TR1 | <--- | TR | 0,683 |
| TR2 | <--- | TR | 0,857 |
| TR3 | <--- | TR | 0,815 |
| UI1 | <--- | UI | 0,68 |
| UI2 | <--- | UI | 0,537 |
| UI3 | <--- | UI | 0,74 |
| UI4 | <--- | UI | 0,647 |

Key: PU = Perceived Usefulness; PEU = Perceived Ease of Use; TR = Trust; BI = Behavioural Intention; PR = Perceived Risk; UI = User Innovativeness; PCOV = Perception of COVID-19; FA = Fintech Acceptance

#### *4.3.2.2 Correlation Matrix*

A correlation matrix is a statistical tool used to examine the relationships between pairs of variables (Gorsuch, 2015). It is a square matrix with the correlation coefficients between pairs of variables as the elements. The correlation

coefficient ranges from -1 to 1, with values closer to -1 or 1 indicating a stronger relationship between the variables.

The correlation matrix is used in literature for exploratory factor analysis (EFA) to determine the factors underlying a set of measures. The size and pattern of the correlations between the measures can be used to identify which measures belong together and which do not. This process can help to identify the underlying factors that give rise to the observed correlations between the measurements (Gorsuch, 2015).

*Table 4.5 Correlation Matrix*

| | TR | PCov | BI | PEU | UI | FA | PER | PU |
|---|---|---|---|---|---|---|---|---|
| **TR** | 1 | | | | | | | |
| **Pcov** | 0,007 | 1 | | | | | | |
| **BI** | .513** | 0,062 | 1 | | | | | |
| **PEU** | .442** | .263** | .571** | 1 | | | | |
| **UI** | .241* | .303** | .447** | .534** | 1 | | | |
| **FA** | .230* | .501** | .425** | .586** | .612** | 1 | | |
| **PER** | -.236* | 0,142 | 0,035 | 0,126 | 0,052 | 0,07 | 1 | |
| **PU** | .419** | .201* | .517** | .466** | .271** | .344** | -0,062 | 1 |

** Correlation is significant at the 0.01 level (2-talled)

*Correlation is significant at the 0.05 level (2-talled)

Key: PU = Perceived Usefulness; PEU = Perceived Ease of Use; TR = Trust; BI = Behavioural Intention; PR = Perceived Risk; UI = User Innovativeness; PCOV = Perception of COVID-19; FA = Fintech Acceptance

Table 4.5 depicts the correlation between the inter-item values, all deviating from 1, therefore, demonstrating discriminant validity. The highest correlation between the two constructs can be seen between PER and TR and between PU and PER, with values of -0.236 and -0.062, respectively. The lowest level of discriminant validity with a value of 0.612 is between UI and FA; however, this value is still considered acceptable.

#### *4.3.2.3 Average Value Extracted (AVE)*

AVE is the average variance the observed variables capture about the underlying construct (Fornell & Larcker, 1981). It represents the extent to which the observed variables share variance with the underlying construct. In other words, AVE assesses the extent to which the observed variables converge on the same

construct. An AVE of 0.5 or above is generally considered acceptable for research purposes (Fornell & Larcker, 1981).

In Table 4.6 below, PU, UI and FA have an AVE lower than 0.5 meaning those constructs do not necessarily indicate a good convergent validity as the literature suggests; however, PEU, TR, BI, PR and PCOV have an AVE value that is above the desirable 0.5 meaning these are considered valid discriminant constructs.

*Table 4.6 Average Value Extracted*

| Research Construct | | AVE Value |
|---|---|---|
| PU | PU1 | 0,409 |
| | PU2 | |
| | PU3 | |
| PEU | PEU1 | 0,755 |
| | PEU2 | |
| | PEU3 | |
| | PEU4 | |
| TR | TR1 | 0,621 |
| | TR2 | |
| | TR3 | |
| BI | BI1 | 0,552 |
| | BI2 | |
| | BI3 | |
| PR | PR1 | 0,563 |
| | PR2 | |
| | PR3 | |
| UI | UI1 | 0,429 |
| | UI2 | |
| | UI3 | |
| | UI4 | |
| PCOV | PCOV1 | 0,629 |
| | PCOV2 | |
| | PCOV3 | |
| FA | FA1 | 0,455 |
| | FA2 | |
| | FA3 | |
| | FA4 | |

Key: PU = Perceived Usefulness; PEU = Perceived Ease of Use; TR = Trust; BI = Behavioural Intention; PR = Perceived Risk; UI = User Innovativeness; PCOV = Perception of COVID-19; FA = Fintech Acceptance

## 4.4 Structural Equation Modelling (SEM)

Structural Equation Modelling (SEM) was used to evaluate the relationship between the different constructs and the hypotheses in the study. SEM is a statistical technique used to analyse complex relationships between multiple

observed and latent variables. In SEM, a model is specified with latent variables represented by various indicators, and the relationships between these variables are estimated using maximum likelihood or another estimation method (Byrne, 2012).

### 4.4.1 *Model Fit Assessment*

Model fit assessment is a crucial step in structural equation modelling SEM that evaluates how well the specified model fits the observed data. In this study, the Confirmatory Factor Analysis (CFA).

Confirmatory factor analysis (CFA) is a statistical technique used to test the measurement model of a set of observed variables by examining the relationships between the observed variables and their underlying latent constructs (Kline, 2016). CFA aims to determine whether the observed variables accurately reflect the latent constructs intended to measure.

### 4.4.2 *Model Fit Indices*

The sub-sections below will discuss this study's different model fit indices. A good model fit was accepted if CMIN/df was less than 3 (Hu et al., 2019), the Goodness of Fit Index (GFI) must be greater than 0.9 to indicate a good fit (Hair et al., 2010), Comparative Fit Index (CFI) must be greater than 0.9 to demonstrate a good fit (Hu & Bentler, 1999; Kline, 2016) and the Root Mean Square Error Approximation (RMSEA) value should be between 0.06 and 0.08 to indicate a good and acceptable model fit (Browne & Cudeck, 1993; Kline, 2016).

#### *4.4.2.1 Chi-Square Index*

The Chi-square minimum value (CMIN), as depicted below in Table 4.7, is used to evaluate the model's overall fit to the data, with smaller values indicating a better fit (Kline, 2016). The CMIN divided by the degree of freedom (DF) should be less than 3 (Hu & Bentler, 1999; Hu et al., 2019) for the model to have a good fit; therefore, the Chi-Square Index from the study findings indicates a value of 1.801 which means this is an acceptable model fit.

*Table 4.7 Chi-Square Index*

| Model | NPAR | CMIN | DF | P | CMIN/DF |
|---|---|---|---|---|---|
| Default model | 78 | 444,752 | 247 | 0 | 1,801 |
| Saturated model | 325 | 0 | 0 | | |
| Independence model | 25 | 2304,37 | 300 | 0 | 7,681 |

#### *4.4.2.2 Baseline Comparison Index*

Table 4.8 depicts the baseline comparison indices where the Comparative Fit Index (CFI) is 0.901, within the recommended threshold suggested by the literature, indicating an acceptable model fit.

*Table 4.8 Baseline Comparisons Index*

| Model | NFI Delta1 | RFI rho1 | IFI Delta2 | TLI rho2 | CFI |
|---|---|---|---|---|---|
| Default model | 0,902 | 0,9 | 0,904 | 0,903 | 0,901 |
| Saturated model | 1 | | 1 | | 1 |
| Independence model | 0 | 0 | 0 | 0 | 0 |

#### *4.4.4.3 Root Mean Square Error of Approximation (RMSEA)*

Based on the suggested literature, an acceptable value for RMSEA should be between 0.06 and 0.08 to indicate a good and acceptable model fit (Browne & Cudeck, 1993; Kline, 2016).

Table 4.9 depicts an RMSEA of 0.069, within the suggested values for the model to be declared a good fit.

*Table 4.9 Root Mean Square Error of Approximation*

| Model | RMSEA | LO 90 | HI 90 | PCLOSE |
|---|---|---|---|---|
| Default model | 0,069 | 0,069 | 0,088 | 0 |
| Independence model | 0,199 | 0,192 | 0,207 | 0 |

#### *4.4.2.4 Goodness-of-Fit Index (GFI)*

The Goodness of Fit Index (GFI) must be greater than 0.9 to indicate a good fit (Hair et al., 2010); the below table 4.10 suggests the study's model fit value for GFI is 0.916, which means an acceptable model fit.

*Table 4.10 Goodness-of-Fit Index*

## 4.5 Path Modelling & Hypotheses Testing

Path modelling is a statistical technique used in SEM to test theoretical models that posit direct and indirect relationships between variables (Kline, 2016).

| Model | RMR | GFI | AGFI | PGFI |
|---|---|---|---|---|
| Default model | 0,081 | 0,916 | 0,714 | 0,608 |
| Saturated model | 0 | 1 | | |
| Independence model | 0,304 | 0,293 | 0,239 | 0,272 |

Path modelling is often used in hypothesis testing, as it allows researchers to evaluate the plausibility of a priori hypotheses about the relationships between variables. Researchers can use path modelling to estimate the strength and significance of each path in the model and to assess the model's overall fit to the data (Hu & Bentler, 1999).

This study assessed the main factors influencing the behavioural intent of consumers to accept and use fintech services in the South African banking sector during the COVID-19 pandemic.

Table 4.11 illustrates the hypotheses and path coefficients. The below Hypothesis results based on p-value are discussed:

H1: Users' perceived usefulness (PU) has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic, which makes H1 significant and supported as $p<0.05$.

H2: Users' perceived ease of use (PEU) has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic; this hypothesis is supported and significant as $p<0.05$.

H3: Users' trust (TRU) in fintech services has a positive influence on the Behavioural Intent (BI) of consumers towards using fintech services during the COVID-19 pandemic; this hypothesis is significant and supported.

H4: Fintech Acceptance (FA) by banking consumers was accelerated by their positive Behavioural Intent (BI) to use fintech services during the COVID-19 pandemic.

H5: Perceived risk (PR) will negatively influence consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic; this hypothesis is supported and significant as the p-value is 0.03.

H6: Users' innovativeness (UI) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic, which is significant and supported.

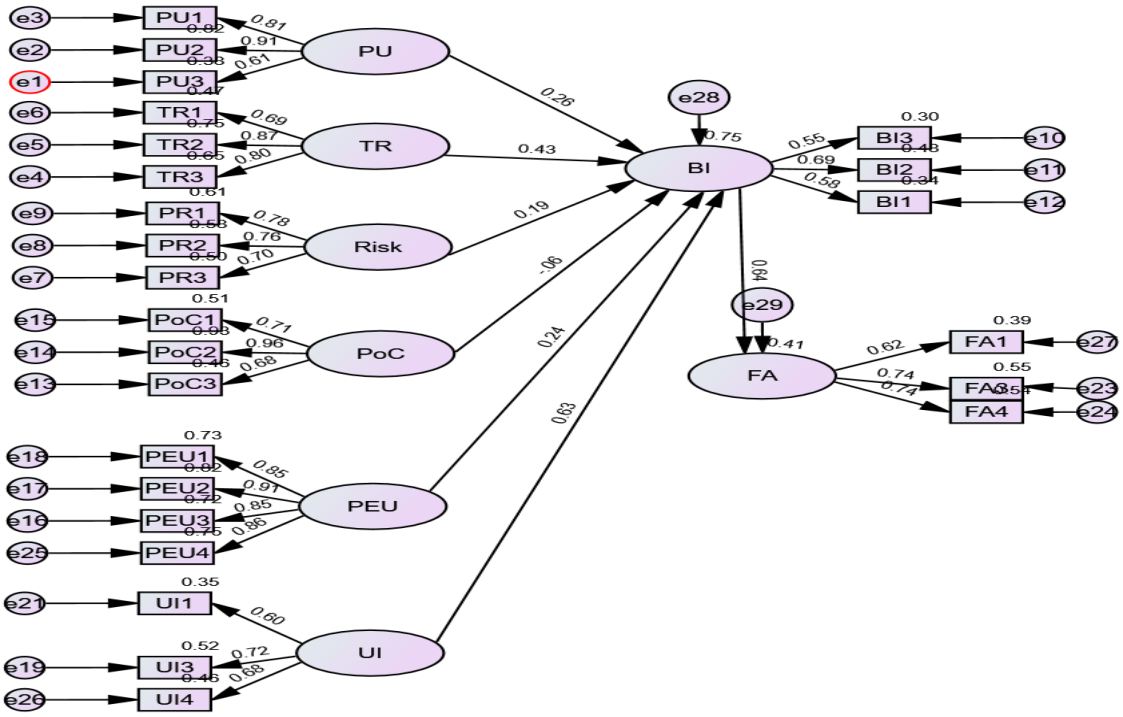
H7: The Perception that the COVID-19 (PCOV) pandemic positively influences Behavioural Intent (BI) towards the use of fintech services is not significant and is not supported.

*Table 4.11 Hypothesis Results & Path Coefficients*

| **Path Coefficient** | | | **Hypothesis** | **Estimate** | **P-value** | **Results** |
|---|---|---|---|---|---|---|
| Behavioural Intent | <--- | Perceived Usefulness | H1 | 0.26 | 0.004 | Significant and supported |
| Behavioural Intent | <--- | Perceived Ease of Use | H2 | 0.242 | 0.004 | Significant and supported |
| Behavioural Intent | <--- | Trust | H3 | 0.433 | *** | Significant and supported |
| Fintech Acceptance | <--- | Behavioural Intent | H4 | 0.641 | *** | Significant and supported |
| Behavioural Intent | <--- | Perceived Risk | H5 | 0.191 | 0.03 | Significant and supported |
| Behavioural Intent | <--- | User Innovativeness | H6 | 0.628 | *** | Significant and supported |
| Behavioural Intent | <--- | Perception of Covid-19 | H7 | -0.061 | 0.432 | Not Significant and Not supported |

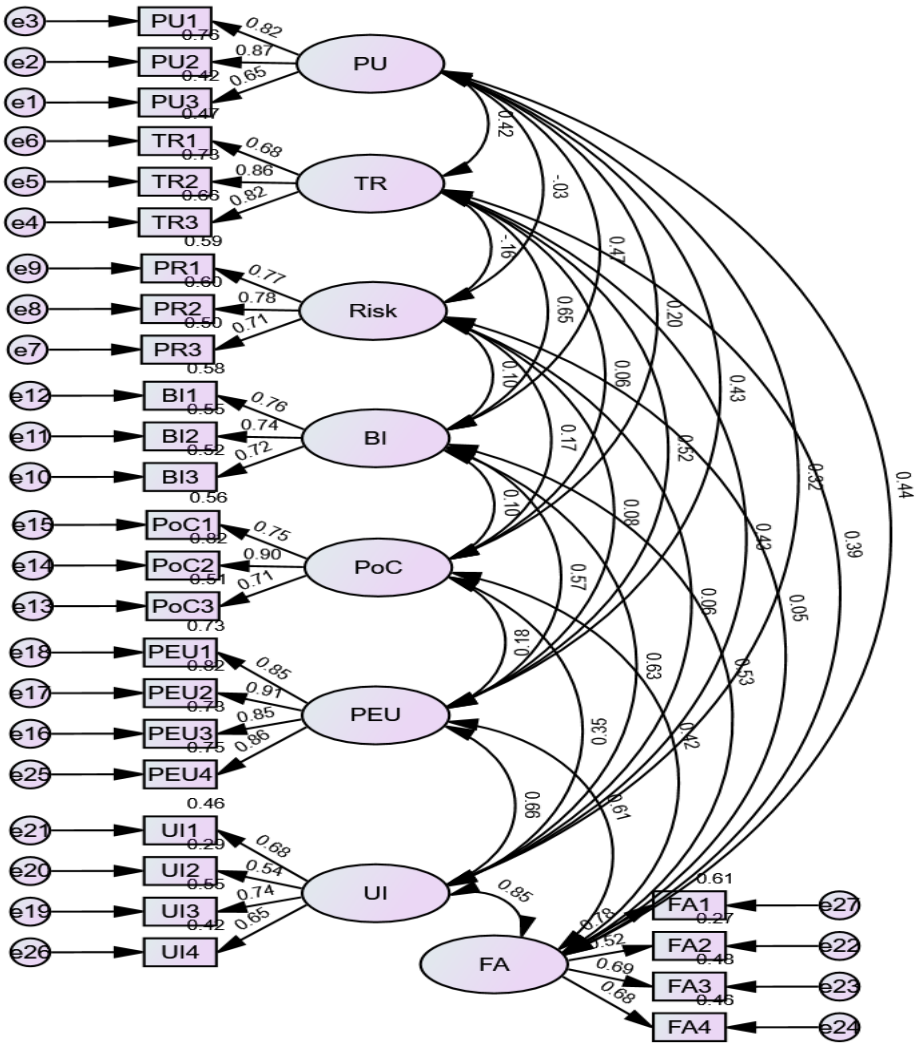
Figure 4.6 below indicates the model used for testing hypotheses.

**Figure 4.6 Model Used for Testing Hypotheses**




Key: PU = Perceived Usefulness; PEU = Perceived Ease of Use; TR = Trust; BI = Behavioural Intention; PR = Perceived Risk; UI = User Innovativeness; PoC = Perception of COVID-19; FA = Fintech Acceptance

**Figure 4.7 Confirmatory Factor Analysis Model**




Key: PU = Perceived Usefulness; PEU = Perceived Ease of Use; TR = Trust; BI = Behavioural Intention; PR = Perceived Risk; UI = User Innovativeness; PoC = Perception of COVID-19; FA = Fintech Acceptance

## 4.6 Common Method Variance

Results from Harman's single factor test in SPSS showed that the single factor explained 30% of the variance, which was significantly less than 50 per cent., meaning common method bias is not a problem. In addition, Podsakoff et al., (2003) recommended conducting confirmatory factor analysis (CFA) for two models; with and without the common latent factor was followed, the difference between all factor loadings in the two models was below 0.2.

## 4.7 Summary of the results

H1: **Users' perceived usefulness (PU) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

The results show that the first hypothesis (H1) is significant and supported. This states that there is a positive relationship between behavioural intent and perceived usefulness towards the use of fintech services during the COVID-19 pandemic; this suggests that if consumers find fintech services to be advantageous and they increase the usefulness of their banking services, they are likely to have a positive behavioural intent which will likely make them accept and use fintech services.

H2: **Users' perceived ease of use (PEU) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

The results show that the second hypothesis (H2) is significant and supported. This states that there is a positive relationship between behavioural intent and perceived ease of use towards fintech services during the COVID-19 pandemic; this suggests that if fintech services are made easy and convenient for consumers and meet their immediate financial and banking needs, they are likely to have a positive behavioural intent to accepting and using fintech services.

H3: **Users' trust (TRU) in fintech services positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

The results show that the third hypothesis (H3) is significant and supported. This indicates that there is a positive influence on behavioural intent towards the use of fintech services during the COVID-19 pandemic; this suggests that if users trust that their data is safe and secure while using banking services and that

fintech services are trustable, they are likely to have a positive influence on behavioural intent which will motivate them to use and accept fintech services.

H4: **Fintech Acceptance (FA) by banking consumers was accelerated by their positive Behavioural Intent (BI) to use fintech services during the COVID-19 pandemic.**

The results show that the fourth hypothesis (H4) is significant and supported. This positively influences behavioural intent and fintech acceptance during the COVID-19 pandemic.

This suggests that if users see benefits in fintech services and are familiar with the services offered by their banking institutions, they are likely to positively influence behavioural intent, motivating them to accept fintech services.

H5: **Perceived risk (PR) will negatively influence consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

The fifth hypothesis (H5) results are not significant or supported. There is a positive relationship between perceived risk and behavioural intention. This indicates that based on the study's findings, the perceived risk does not negatively influence how users behave towards using fintech services during the COVID-19 pandemic.

This suggests that even if users feel that fintech services are risky and expose them to privacy and financial risk, they will still use them.

H6: **Users' innovativeness (UI) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

The sixth hypothesis (H6) is significant and supported. This means that a user's innovativeness positively influences behavioural intention. This suggests that if users explore new fintech banking features amongst their peers, being the first to explore new fintech services and continue to use them even after the pandemic will likely influence their behaviour and intent to use them positively.

H7: **The Perception of the COVID-19 (PCOV) pandemic positively influences Behavioural Intent (BI) towards using fintech services.**

The seventh hypothesis (H7) is not supported. This indicates no relationship between Behavioural Intent and the Perception of the COVID-19 pandemic. This suggests that even if the COVID-19 pandemic affected users' lifestyles and changed how they handled their finances due to the pandemic restrictions, this will not likely influence their fintech acceptance and usage.

## 4.8 Chapter Summary

This chapter discussed and illustrated the statistical analysis from the data collected on Consumer Acceptance of Fintech Services in the South African Banking Sector during the COVID-19 pandemic. Descriptive analytics, reliability and validity, model fit assessment, structural equation modelling and path & hypotheses testing were conducted. Five out of the seven hypotheses were supported by the findings, which indicated that Perceived Usefulness, Perceived Ease of Use, Trust, User Innovativeness and Fintech Acceptance have a direct relationship to behavioural intent to use fintech services in banking during the COVID-19 pandemic; however, Perceived Risk and the Perception of the COVID-19 was not supported as a construct as they were found to be not significant in this study. The next chapter will be based on critical discussions of the study findings against the literature in the literature review.

# CHAPTER 5. DISCUSSION OF THE RESULTS

## 5.1 Introduction

This chapter discusses the research results and findings in depth by considering what the literature says. Each hypotheses results will be discussed in relation to findings and literature showing similarities and differences between the two. In the conclusion of the chapter, based on the results, a discussion around the implication of the results on the SA banking industry will be outlined.

## 5.2 Main Findings

This chapter will detail the main findings of the factors influencing consumers' behavioural intent to use fintech services for their banking needs during the COVID-19 pandemic.

### 5.2.1 *Demographic Findings / Descriptive Statistics*

In general, the data shows that female respondents use fintech slightly more than male respondents; this may be because the survey had 66% female and 27% male respondents. The age group with the highest number of respondents in this study using fintech services was between 25 – 34 years; although the relationship between age and fintech services usage is complex and multifaceted, there are previous studies that suggest that younger individuals are more likely to adopt and use technology however there are some studies that also suggest that older individuals are becoming a lot more aware and comfortable with technology and the potential benefits of using fintech services.

A report by PwC (2021) found that the life stage of an individual is in has a significant impact on the adoption of fintech services, with individuals in their 20s and 30s being more likely to use fintech services for personal finance management, investment, and insurance purposes. The report suggested this was because individuals in these age groups are often more focused on building

their financial futures and may be more willing to experiment with new financial tools and services.

A Federal Reserve Board (2016) study found that older individuals are less likely to use mobile banking, online banking, and electronic bill payment services. Still, the differences in usage and adoption across age groups have started to change over time.

Another study found that age was a significant predictor of adopting fintech services, with younger individuals being more likely to adopt and use fintech services. The study suggested that younger individuals have higher technology literacy levels and greater comfort with using digital tools for financial transactions (Tsai et al., 2020).

In previous studies, education levels have been associated with greater use of fintech services as with the findings in this study, the higher the level of education, the more individuals were attributed to fintech acceptance and usage, with 31% having bachelor's degrees, and 44% having postgraduate degrees and higher.

A study conducted by the World Bank in 2017 found that individuals with higher levels of education were more likely to adopt and use digital financial services, including mobile money and electronic payments. The study suggested that this was since individuals with higher levels of education tend to have greater financial literacy and a better understanding of the potential benefits of using fintech services.

Another study found that education levels were a significant predictor of adopting fintech services, even after controlling for age, income, and gender. The study suggested that this relationship was mediated by the perceived usefulness and ease of use of fintech services, which were both found to be higher among individuals with higher levels of education (Tsai et al., 2020).

Additionally, a report by Deloitte in 2020 found that consumers with higher levels of education were more likely to use fintech services for investment purposes, such as trading stocks or cryptocurrencies. The report suggested that this was

since individuals with higher levels of education tend to have a greater understanding of financial markets and investment opportunities.

The descriptive statistical findings of the study also revealed that the pandemic has led to an increase in the adoption and usage of fintech services, particularly in the use of mobile and digital wallet services. Digital lending, credit services, Insurtech, and cryptocurrencies have also experienced a surge in usage. Additionally, there has been a continued increase in Internet and mobile banking usage.

A report by McKinsey & Company (2020) supports the descriptive statistical findings of this study, as it suggested in the report that the COVID-19 pandemic had accelerated the adoption of digital financial services, with the usage of digital payments and online banking increasing significantly. The report also noted that digital lending and investment platforms were seeing increased usage as individuals looked for new sources of income and investment opportunities.

Another study that supports the descriptive statistical findings of this study was conducted by the World Bank Group (2022), which found that the pandemic had led to an increase in the usage of mobile money and other digital financial services in many countries.

In the section below, the main findings based on the Hypotheses raised in the research will be discussed in relation to the literature to show similarities and differences.

### 5.2.2 *Hypothesis 1*

H1: **Users' perceived usefulness (PU) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

The results show that the first hypothesis (H1) is significant and supported. This states that there is a positive relationship between behavioural intent and perceived usefulness towards the use of fintech services during the COVID-19 pandemic; this suggests that if consumers find fintech services to be

advantageous, they are likely to have a positive behavioural intent which will likely make them accept and use fintech services.

The findings from this study are supported by previous studies on fintech services, which have also documented a positive relationship between behavioural intent and perceived usefulness. For example, a study by Luarn and Lin (2005) found that perceived usefulness significantly predicted the behavioural intention to use mobile banking services in Taiwan. Similarly, a study by Zhou et al., (2010) found that perceived usefulness significantly predicted the intention to use online payment systems in China.

Likewise, a study by Kshetri (2018) found that perceived usefulness was positively related to the intention to use peer-to-peer lending platforms in the United States. The study suggested that if borrowers perceive peer-to-peer lending platforms as useful, they are more likely to have the intention to use them.

Wang et al., (2020) found that perceived usefulness significantly positively affected behavioural intention to use artificial intelligence (AI) in online shopping. The study suggested that consumers who perceive AI as useful are more likely to have the intention to use it for online shopping.

In summary, previous studies on fintech services have consistently documented a positive relationship between perceived usefulness and behavioural intention in various contexts, including mobile banking, payment systems, and online investment. The findings suggest that if users perceive fintech services as useful, they are more likely to have the intention to use them.

### 5.2.3 *Hypothesis 2*

H2: **Users' perceived ease of use (PEU) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

The results show that the second hypothesis (H2) is significant and supported. This states that there is a positive relationship between behavioural intent and perceived ease of use towards fintech services during the COVID-19 pandemic;

this suggests that if fintech services are made easy and convenient for consumers and meet their immediate financial and banking needs, they are likely to have a positive behavioural intent to accepting and using fintech services.

Previous studies on fintech services have also documented a positive relationship between behavioural intent and perceived ease of use which supports the findings of this study. This relationship suggests that if fintech services are perceived as easy to use, users are more likely to have the intention to use them. Several studies have investigated this relationship using the Technology Acceptance Model in different contexts, including mobile banking, payment systems, and online investment.

Another study that supports the findings of this study is by Govender and Pieterse (2021), where they investigated the factors that influence South African consumers' adoption of fintech services. The study found that consumers' attitudes towards fintech services, including their perceived usefulness, ease of use, trustworthiness, and compatibility with existing financial services, were key predictors of their adoption behaviour. The study also suggested that consumers' positive attitudes towards fintech services were influenced by their perceived benefits, such as convenience, cost savings, and accessibility.

### 5.2.4 *Hypothesis 3*

H3: **Users' trust (TRU) in fintech services positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

The results show that the third hypothesis (H3) is significant and supported. This indicates that there is a positive influence on behavioural intent towards the use of fintech services during the COVID-19 pandemic; this suggests that if users trust that their data is safe and secure while using banking services and that fintech services are trustable, they are likely to have a positive influence on behavioural intent which will motivate them to use and accept fintech services.

Previous studies using TAM as a theoretical framework have also documented a positive relationship between behavioural intent and trust. For example, a Du (2011) study found that trust was a significant positive predictor of the behavioural intention to use mobile banking services in China. The study suggested that if users perceive mobile banking services as trustworthy, they are more likely to have the intention to use them.

Zhou et al., (2010) suggest that financial technology companies with the ability to establish trust with users and provide reliable data security measures and infrastructure are likely to experience the most significant growth and revenue opportunities.

There has been a considerable increase in cyber security issues such as data breaches, phishing scams, identity fraud etc. the trust the consumer has in the security of their transactions remains a crucial component in the confidence the consumer has in the fintech institution with their data and finances (Slazus & Bick, 2021).

### 5.2.5 *Hypothesis 4*

H4: **Fintech Acceptance (FA) by banking consumers was accelerated by their positive Behavioural Intent (BI) to use fintech services during the COVID-19 pandemic.**

The results show that the fourth hypothesis (H4) is significant and supported. This positively influences behavioural intent and fintech acceptance during the COVID-19 pandemic.

This suggests that users see benefits in fintech services and are familiar with the fintech services offered by their banking institutions. They are likely to continue to use fintech services even after the pandemic and believe that the COVID-19 pandemic somehow accelerated their acceptance and use of fintech services.

There is evidence that supports the study findings that fintech acceptance (FA) by banking consumers was accelerated by their positive behavioural intent (BI) to use fintech services during the COVID-19 pandemic.

A study by Ondrus and Pigneur (2018) examined the factors influencing consumers' adoption of mobile payment services. The study found that perceived usefulness, perceived ease of use, and behavioural intention were significant predictors of mobile payment adoption. The authors concluded that behavioural intention is a critical factor in adopting mobile payment services, as it mediates the effects of perceived usefulness and perceived ease of use.

Another study by Akhtar et al., (2020) that supports the findings investigated the factors influencing consumers' adoption of cryptocurrencies in Pakistan. The study found that consumers' positive behavioural intent towards using cryptocurrencies was a key predictor of their adoption behaviour.

### 5.2.6 *Hypothesis 5*

H5: **Perceived risk (PR) will negatively influence consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

The fifth hypothesis (H5) results are not significant or supported. This indicates that based on the study's findings, the perceived risk does not negatively influence how users behave towards using fintech services during the COVID-19 pandemic.

This suggests that even if users feel that fintech services are risky and expose them to privacy and financial risk, this will not influence their behaviour negatively to accept and use fintech services, meaning the respondents of this study will continue to accept and use fintech even if it poses a particular risk on them.

Several studies have investigated the relationship between perceived risk and behavioural intention to use fintech services in South Africa. The results of these studies have been mixed, with some finding a negative relationship between perceived risk and behavioural intention, while others have found no significant relationship.

A study that contradicts this is by Kaur et al., (2021), which investigated the factors influencing the adoption of mobile money in South Africa and found that perceived risk was negatively related to the behavioural intention to use mobile

money services. Similarly, a study by Chiramba and Chigwenya (2020) found that perceived risk significantly affected the behavioural intention to use mobile banking services in South Africa.

Studies similar to this study found no significant influence in the relationship between perceived risk and behavioural intent. Ojo and Misra (2020) found no significant relationship between perceived risk and behavioural intention to use mobile banking services in South Africa. The study suggested that other factors, such as perceived usefulness and ease of use, may significantly influence the behavioural intention to use mobile banking services in South Africa.

### 5.2.7 *Hypothesis 6*

H6: **Users' innovativeness (UI) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

Hypothesis 6 (H6) is supported and found to be significant, indicating that the innovativeness of a user has a favourable impact on their behavioural intention towards fintech. This implies that individuals who are early adopters of new fintech banking features and are the first to explore new fintech services are likely to influence their intent to use them positively.

Previous studies have documented a positive relationship between user innovativeness and behavioural intention to use fintech services. Several studies have found that users with high levels of innovativeness are more likely to adopt fintech services and have a greater intention to use them.

Another study by Hu et al., (2019) found that user innovativeness positively affected the adoption of online investment platforms in China. The study suggested that users with high levels of innovativeness are more willing to experiment with new investment products and have a greater intention to use online investment platforms.

Similarly, a study by Ndubisi and Sinti (2018) found that user innovativeness was positively related to the intention to use mobile money services in South Africa.

The study also found that perceived usefulness and perceived ease of use were significant predictors of the intention to use mobile money services.

However, another study by Botha et al., (2018) found that user innovativeness had no significant effect on the intention to use mobile banking services in South Africa. The study suggested that other factors, such as trust, perceived usefulness, and perceived ease of use, maybe more important in determining the intention to use mobile banking services.

### 5.2.8 *Hypothesis 7*

H7: **The Perception of the COVID-19 (PCOV) pandemic positively influences Behavioural Intent (BI) towards using fintech services.**

The seventh hypothesis (H7) is not supported. This indicates no relationship between Behavioural Intent and the Perception of the COVID-19 pandemic. This suggests that even if the COVID-19 pandemic affected users' lifestyles and changed how they handled their finances due to the pandemic restrictions, there is no significant influence on their behavioural intent to use fintech services.

The COVID-19 pandemic has significantly influenced the use of fintech services in South Africa, and some studies have investigated the relationship between the perception of COVID-19 and behavioural intent to use fintech services.

A study by Boshoff & Boon (2021) contradicts this study's findings in that the perception of COVID-19 as a threat to health and safety positively related to the intention to use contactless payment methods in South Africa. The study suggested that the COVID-19 pandemic had increased the perceived usefulness of contactless payments as a safer and more hygienic alternative to traditional payment methods. Similarly, a study by Mhlanga (2021) found that the perception of COVID-19 risk was positively related to the intention to use mobile money services in South Africa.

Agbo and Adu (2020) conducted a study that supported our study and found that the perception of COVID-19 risk had no significant effect on the intention to use mobile banking services in South Africa. The study suggested that other factors,

such as trust, perceived usefulness, and perceived ease of use, may be more critical in determining the intention to use mobile banking services during the COVID-19 pandemic.

## 5.3 Conclusion

Hypotheses H1, H2, H3, H4, and H6 showed similar findings to existing literature. They confirmed significant correlations and a positive relationship between perceived usefulness, perceived ease of use, trust, and user innovativeness with behavioural intent to use fintech services. However, H5 was not significant and not supported based on the results of the study; even though the hypothesis stated a negative relationship between perceived risk and behavioural intent, the results from the data collection contradict the hypothesis as the results were not significant, which showed users did not perceive the risk to influence them from using fintech services. H7 was also not supported as it showed no significant relationship between the perception of COVID-19 and behavioural intent.

*Table 5.1 Results of Research Hypotheses*

| | **Hypotheses** | **Results** |
|---|---|---|
| H1 | Users' perceived usefulness (PU) has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic | Supported |
| H2 | Users' perceived ease of use (PEU) has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic | Supported |

| | | |
|---|---|---|
| H3 | Users' trust (TRU) in fintech services has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic | Supported |
| H4 | Fintech Acceptance (FA) by banking consumers was accelerated by their positive Behavioural Intent (BI) to use fintech services during the COVID-19 pandemic | Supported |
| H5 | Perceived risk (PR) will negatively influence the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic. | Not Supported |
| H6 | Users' innovativeness (UI) has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic | Supported |
| H7 | The Perception of the COVID-19 (PCOV) pandemic has a positive influence on Behavioural Intent (BI) towards the use of fintech services | Not Supported |

# CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

## 6.1 Introduction

In this chapter, an overview of the main findings of this study will be discussed, and answers to the research question will be provided; discuss further, the study's contributions, limitations, and recommendations for future research.

## 6.2 Conclusions of Main Findings

The main question of this research study was to determine the main factors influencing consumer acceptance and the usage of fintech services in the South African banking sector during the COVID-19 pandemic.

In this study, Behavioural intent was used to measure fintech acceptance as the primary predictor of actual acceptance of fintech services in SA banking during the Covid-19 pandemic. The Technology Acceptance Model (TAM) provided a useful framework for understanding and predicting user adoption and acceptance of fintech technologies, especially during the COVID-19 pandemic.

Behavioural intention was a strong predictor of actual behaviour and is believed to be influenced by perceived usefulness, perceived ease of use, and attitudes towards technology (Ajzen, 1991).

However, it is important to note that behavioural intention is not always a reliable predictor of actual behaviour. Other factors such as social influence, situational factors, and past experience may also influence an individual's use of fintech technologies during the pandemic (Hsu & Lu, 2004).

Five of the seven hypotheses were found to be significant and had a positive relationship between the variables; this is based on the results of this study and findings from previous literature; therefore, the following are the main factors that

can be used to determine the consumer acceptance of fintech services in the South African banking sector during the COVID-19 pandemic:

i. Behavioural Intent
ii. Perceived usefulness
iii. Perceived ease of use
iv. Fintech Acceptance
v. Trust
vi. User Innovativeness

Fintech has rapidly transformed how consumers access and use financial services worldwide, and South Africa is no exception. In recent years, South African banks have invested in fintech to enhance their digital offerings and improve the customer experience (SABRIC, 2021).

The pandemic has also led to an increase in the use of mobile banking; this is also identified from the findings of this study. According to a report by PwC, South African banks have seen a 50% increase in the use of mobile banking since the start of the pandemic (PwC, 2021). This trend is expected to continue, with mobile banking becoming increasingly popular among South African consumers.

The pandemic has also highlighted some of the challenges of fintech adoption in South Africa. One of the main challenges is the lack of access to digital financial services among specific populations, particularly those living in rural areas; this is also noted from the high percentage of respondents in Gauteng, considered an urban province, compared to other provinces. Additionally, there are concerns about the potential for cybercrime and data breaches as financial services move increasingly online (PWC, 2021).

Overall, previous studies on fintech services in South Africa have provided mixed findings regarding the relationship between the perception of COVID-19 and behavioural intention. While some studies have found a positive relationship, others have found no significant relationship. The influence of the perception of COVID-19 on behavioural intention may depend on the specific fintech service being studied and other individual and contextual factors.

Another difference between this study to previous literature is that previous studies on fintech services in South Africa have provided mixed findings regarding the relationship between perceived risk and behavioural intention. Some studies found a negative relationship, while others found no significant one. The influence of perceived risk on behavioural intention may be context-dependent and vary depending on the specific fintech service and user group being studied (Ojo & Misra, 2020).

*Table 6.1 Research Sub Questions*

| **Research Sub Question** | **Hypothesis** | **Conclusions** |
|---|---|---|
| What is the relationship between behavioural intent to fintech technologies and perceived ease of use? | H4 | Fintech Acceptance has a significant and positive relationship between behavioural intent and is supported by the findings of this study and previous literature |
| Does trust positively influence behavioural intent of financial technology? | H3 | Trust has a significant and positive relationship between behavioural intent and is supported by the findings of this study and previous literature |
| What is the relationship between behavioural intent to use fintech services and perceived usefulness? | H1 | There is a significant and positive relationship between perceived usefulness and behavioural intent based on the findings of this study and previous literature |
| What is the relationship between behavioural intent | H6 | There is a significant and positive relationship between user |

| | | |
|---|---|---|
| to fintech technologies and user innovativeness? | | innovativeness and behavioural intent based on the findings of this study and previous literature |
| Does perceived risk negatively influence behavioural intent on the use of fintech services? | H5 | This was not significant and not supported by the findings of the research study |
| Does behavioural intent influence fintech acceptance? | H4 | There is a significant and positive relationship between fintech acceptance and behavioural intent based on the findings of this study and previous literature |
| What was the behavioural intent of fintech services during the COVID-19 pandemic in the banking sector in SA? | H7 | This was not significant and not supported by the findings of the research study. |
| What fintech services are being used by consumers to fulfil their banking/financial needs/services? Before COVID-19 and During COVID-19 | N/A | The following fintech services are the Top 5 most used before & during the COVID-19 pandemic by SA consumers:<br>i. Mobile / Internet Banking<br>ii. Mobile / Digital Wallet<br>iii. Digital Lending / Digital Credit<br>iv. Insurtech |

| | | |
|---|---|---|
| | | v. Cryptocurrencies |

In summary, this research has established that behavioural intention is the primary predictor for actual consumer acceptance of fintech services in the SA banking context during the COVID-19 pandemic, however in using TAM, other variables were established to play an essential role in fintech service acceptance, such as perceived usefulness, perceived ease of use, trust, user innovativeness with perceived risk and perception of COVID-19 having no influence on behavioural intent.

Previous research studies have used TAM from the perspective of the business and how the business can use fintech to improve efficiency and customer experience (Hu et al., 2019); however, this study focused on the consumer side of acceptance and how consumers use fintech services to fulfil their own financial needs during the COVID-19 pandemic therefore, this research study and findings can now add to the gap identified from literature which implies it had a valuable contribution to related literature as another body of work on consumer acceptance of fintech services was conducted from other countries.

It is also worth noting that the study was conducted during the outbreak of the COVID-19 pandemic. It is still somewhat new and can help increase technology and social sciences literature. Therefore, it provides additional literature to the COVID-19 literature on fintech services in SA. It is also important to note that SA is a developing country; this literature can help understand the acceptance and use of fintech services in developing countries.

## 6.3 Recommendations

This study on consumer acceptance of fintech services in SA Banking during the COVID-19 pandemic can provide important insights and recommendations for

banks and fintech companies to meet their customer's changing needs better and remain competitive in the rapidly evolving financial services industry.

### 6.3.1 *Recommendations based on Significant Hypotheses.*

H1: **Users' perceived usefulness (PU) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

H2: **Users' perceived ease of use (PEU) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

***Emphasise the use of their fintech services***: Banks can promote the value of their fintech services to customers by emphasising how their digital banking platforms can enable customers to carry out transactions from the safety and convenience of their homes without the need to visit physical branches.

***Improve the usability of their fintech services***: Banks can enhance the user-friendliness of their platforms by simplifying navigation and ensuring clarity in their presentation. Such improvements can enable users to access desired services more efficiently, enhancing their perception of the service's usefulness.

***Training and support*:** Banks can offer users training and assistance to help them use their fintech services effectively. This can reduce any perceived complications or difficulties that come with using the services, increasing users' perceived usefulness and willingness to use the services.

***Offer incentives for using fintech services***: One option for banks is to provide rewards or discounts, such as cashback or fee reductions, to customers who use their fintech services. This could incentivise more people to use these services, increasing adoption rates.

***Continuously monitor user feedback***: Banks should regularly monitor user feedback on their fintech services to identify areas that need improvement and ensure that the services meet customers' needs. Doing so can improve

customers' perception of the usefulness of the services and ultimately lead to increased adoption rates.

H3: **Users' trust (TRU) in fintech services positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

***Ensure the security and reliability of their fintech services*:** To enhance users' trust and willingness to use them, banks need to ensure the security and reliability of their services and take measures to protect customers' personal and financial information.

***Be transparent about their data privacy policies***: Banks should be transparent about their data privacy policies and how they collect, use, and protect customers' personal and financial information.

***Offer multiple layers of security*:** Banks should implement multiple security measures, including two-factor authentication, biometric authentication, and transaction monitoring. This can provide users with greater protection for their accounts and data and increase their overall confidence in the safety and reliability of the services.

H4: **Fintech Acceptance (FA) by banking consumers was accelerated by their positive Behavioural Intent (BI) to use fintech services during the COVID-19 pandemic.**

***Offer a range of fintech services***: Banks should offer a range of fintech services that meet the diverse needs of their customers. Banks can increase customers' acceptance and adoption of their services by providing a comprehensive suite of fintech services.

***Provide a seamless user experience***: Banks should ensure that their fintech services are designed in a way that is both easy to use and intuitive. This may involve simplifying the user interface, minimising the steps required to complete a transaction, and optimising the service for mobile devices. By offering a

seamless user experience, banks can improve user satisfaction and promote repeat usage.

***Invest in digital marketing and education***: Banks should invest in digital marketing and education to increase awareness and understanding of their fintech services. This can include targeted advertising campaigns, social media engagement, and educational content such as tutorials and webinars.

H6: **Users' innovativeness (UI) positively influences consumers' Behavioural Intent (BI) towards using fintech services during the COVID-19 pandemic.**

***Provide early access to beta features***: Banks can offer exclusive access to beta features of fintech solutions to customers interested in testing them early. This approach can help establish a community of early adopters who are enthusiastic about fintech and can provide constructive feedback to enhance the services.

***Encourage user feedback and input*****:** Banks should actively seek user feedback and suggestions and use this feedback to improve and refine their offerings. By engaging with users and incorporating their tips, banks can develop services that better align with user needs and preferences.

***Foster a culture of innovation***: To promote innovation, banks should cultivate a work environment that encourages employees to explore and experiment with new technologies and ideas. This can be achieved by recognising and rewarding creative thinking and providing opportunities for professional development. By fostering a culture of innovation, banks can attract and retain top talent and create a more dynamic and adaptive organisation.

### 6.3.2 *Recommendations based on Demographics/ Descriptive statistics.*

In this study, it was identified that the age group 25-34 years was amongst the most SA users that use fintech services for their financial needs; recommendations based on this that can be made are as follows:

- ***Develop targeted marketing strategies***: Banks can develop targeted marketing strategies focusing on reaching out to the age group most likely to use fintech services.
- ***Invest in user-friendly interfaces****:* Banks can invest in user-friendly interfaces that make it easy for customers of all ages to use their digital financial services. This can help to reduce barriers to adoption experienced by older generations and improve customer satisfaction.
- ***Education and support***: Banks can provide education and support to help customers of all ages learn how to use their digital financial services. This can include providing online tutorials, user guides, or phone support to help customers who may be less familiar with the technology.
- ***Adapt to changing customer needs*****:** Banks should continue to adapt their services to meet the changing needs of customers of all ages. This can include developing new digital services tailored to different age groups' needs or adjusting existing services to make them more user-friendly or accessible to a broader range of customers.
- ***Collaborate with fintech start-ups*****:** Banks can collaborate with fintech start-ups to leverage their expertise and provide innovative financial services that appeal to a broader range of customers, including those in different age groups.

Generally, banks must be responsive to evolving customer needs and preferences, irrespective of age. By creating user-friendly interfaces, providing education and support, and implementing effective marketing strategies, banks can enhance their adoption rates and customer satisfaction and remain competitive in the fast-changing financial services industry. Being flexible and adaptable is the key to success for banks in meeting customer demands.

The study also identified an increase in SA consumers using fintech services for their banking needs during the COVID-19 pandemic; based on this finding, the following can be recommended to banks:

- ***Continue investing in digital infrastructure***: To meet the rising demand for fintech services, banks should invest in their digital infrastructure. This

may involve enhancing their online platforms and reinforcing cybersecurity measures.

- ***Develop innovative digital fintech services*:** Banks can create new and inventive digital fintech services that cater to evolving customer needs. This could involve designing new products that are easier and more convenient for customers, such as online investment platforms, mobile payments, or digital wallets.
- ***Collaborate with fintech start-ups***: Banks can collaborate with fintech start-ups to leverage their expertise and provide innovative financial services that appeal to a broader range of customers.
- ***Ensure compliance with regulatory requirements***: Banks must ensure compliance with regulatory requirements to ensure that their digital financial services are safe, secure, and reliable. This can include ensuring compliance with data protection laws, anti-money laundering regulations, and other relevant legislation.

By doing the above, banks can remain competitive and meet the evolving needs of their customers in the post-COVID-19 era.

The top 5 most used fintech services amongst SA banking consumers before and during the pandemic were Internet/mobile banking 44%, digital/mobile wallet 25%, digital lending & credit 16%, Insurtech 11% and Cryptocurrencies 6,7%. The listed fintech services are not available as core banking services; the majority are external fintech services offered by fintech start-ups; this can help banks to start aligning with these services and possibly introduce them as additional service offerings as there is a growing market that is interested and using these services already.

## 6.4 Limitations

This study aimed to understand the consumer acceptance of fintech services in SA banking consumers during the COVID-19 pandemic; However, the study will add to the SA fintech and COVID-19 body of work; it does have limitations.

i. The method of collection used, as this was an online survey, the respondents might have needed to be more truthful and engaged when answering the questionnaire, which may have distorted the results.
ii. The survey method may have failed to help us consider people's unique ways of expressing their experiences.
iii. The population target may have been an insufficient representation of the sample needed to answer the research questions as social media platforms such as LinkedIn, Twitter, WhatsApp, and Instagram were used to collect data, and this may not be a true reflection of SA banking consumers.
iv. The study is limited to SA banking consumers and only focuses on SA demographics.
v. The study focused on banking services or banking institutions that have implemented financial technologies, and the following financial technologies were the key focus of the study:
    - Cryptocurrencies
    - Digital Banking
    - Digital Wallet
    - Insurtech
    - Digital wealth management
    - Digital lending
    - Blockchain
vi. Influences on consumer acceptance of Fintech usage and adoption are not exhaustive; therefore, further study on factors other than those identified in this study can be conducted.

## 6.5 Suggestions for further research

This study was focused on understanding the consumer acceptance of fintech services in SA banking consumers during the COVID-19 pandemic. There was a significant correlation between fintech acceptance and age, educational levels and even job sectors, so further research can be done to investigate those

aspects. As much as this study contributes to the knowledge on fintech acceptance and the COVID-19 pandemic in SA, further research can be done to look at specific fintech services rather than as a grouped approach as this study investigated.

With regards to the banking sector, SA has traditional banks and new digital entrants, and it would be interesting to see from bank type perspective how fintech acceptance can be measured and understood. As this study was conducted during the pandemic, the long-term influence of COVID-19 on consumer acceptance can be further measured as the restrictions are lifted and a “new normal” has been introduced.

The study was also based on a consumer level of fintech acceptance; future studies can explore the fintech acceptance from an organisational or institutional level in SA, such as looking into the acceptance and adoption of fintech in businesses and start-ups and what factors would influence the positive influence to accept fintech services.

Lastly, future research can be conducted in other developing countries to understand the consumer acceptance of fintech services in their country-specific banking consumers before, during and after the COVID-19 pandemic.

**Table 4. Consistency table: research questions, propositions, data collection and data analysis**

| **Main Objective:** What are the main factors influencing the behavioural intent of consumers to accept and use fintech services in the South African banking sector, during the COVID-19 pandemic? | | | | | | |
|---|---|---|---|---|---|---|
| **Research Question Number #** | | **State Research Question or Objective** | **Prop/hyp #** | **State Proposition or Hypothesis** | **Data collection detail** | **Data analysis method** |
| I | | What is the relationship between behavioural intent to and perceived ease of use? | H2 | Users' perceived ease of use (PEU) has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic | Questionnaire Likert statement | 1. Descriptive Analytics<br>2. Cronbach's Alpha<br>3. Structural Equation Model |
| ii | | Does trust positively influence behavioural | H3 | Users' trust (TRU) in fintech services has a positive influence on the | Questionnaire Likert statement | |

| **Main Objective:** What are the main factors influencing the behavioural intent of consumers to accept and use fintech services in the South African banking sector, during the COVID-19 pandemic? | | | | | | |
|---|---|---|---|---|---|---|
| **Research Question Number #** | | **State Research Question or Objective** | **Prop/hyp #** | **State Proposition or Hypothesis** | **Data collection detail** | **Data analysis method** |
| | | intent to use fintech services? | | Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic | Questionnaire Likert statement | |
| iii | | What is the relationship between behavioural intent and perceived usefulness? | H1 | Users' perceived usefulness (PU) has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic | Questionnaire Likert statement | 1. Descriptive Analytics<br>2. Cronbach's Alpha<br>3. Structural Equation Model |

| **Main Objective:** What are the main factors influencing the behavioural intent of consumers to accept and use fintech services in the South African banking sector, during the COVID-19 pandemic? | | | | | | |
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| **Research Question Number #** | | **State Research Question or Objective** | **Prop/hyp #** | **State Proposition or Hypothesis** | **Data collection detail** | **Data analysis method** |
| Iv | | What is the relationship between behavioural intent and user innovativeness? | H6 | Users' innovativeness (UI) has a positive influence on the Behavioural Intent (BI) of consumers towards the use of fintech services during the COVID-19 pandemic | Questionnaire Likert statement | 1. Descriptive Analytics |
| V | | Does perceived risk negatively influence behavioural intent? | H5 | Perceived risk (PR) will negatively influence the Behavioural Intent (BI) of consumers towards the use of fintech | Questionnaire Likert statement | |

| **Main Objective:** What are the main factors influencing the behavioural intent of consumers to accept and use fintech services in the South African banking sector, during the COVID-19 pandemic? | | | | | | |
|---|---|---|---|---|---|---|
| **Research Question Number #** | | **State Research Question or Objective** | **Prop/hyp #** | **State Proposition or Hypothesis** | **Data collection detail** | **Data analysis method** |
| | | | | services during the COVID-19 pandemic. | | 2. Cronbach's Alpha<br>3. Structural Equation Model |
| Vi | | Does fintech acceptance influence behavioural intent? | H4 | Fintech Acceptance (FA) by banking consumers was accelerated by their positive Behavioural Intent (BI) to use fintech services during the COVID-19 pandemic | Questionnaire Likert statement | |
| Vii | | What was the behavioural intent to use fintech services | H7 | The Perception of the COVID-19 (PCOV) pandemic has a positive | Questionnaire Likert statement | |

| **Main Objective:** What are the main factors influencing the behavioural intent of consumers to accept and use fintech services in the South African banking sector, during the COVID-19 pandemic? | | | | | | |
|---|---|---|---|---|---|---|
| **Research Question Number #** | | **State Research Question or Objective** | **Prop/hyp #** | **State Proposition or Hypothesis** | **Data collection detail** | **Data analysis method** |
| | | during the COVID-19 pandemic in the banking sector in SA? | | influence on Behavioural Intent (BI) towards the use of fintech services | | |
| Viii | | What financial technologies are being used by consumers to fulfil their banking/financial needs/services? | NA | Financial technology acceptance and use by consumers in the SA banking sector accelerated during the COVID-19 pandemic | Questionnaire | 1. Descriptive Analytics<br>2. Cronbach's Alpha<br>3. Structural Equation Model |

# REFERENCES


Abdus Salam, M., Saha, T., Habibur Rahman, M., & Mutsuddi, P. (2021). Challenges to Mobile Banking Adaptation in COVID-19 Pandemic. Journal Of Business and Management Sciences, 9(3), 101-113.

Accenture. (2021). Coronavirus (COVID-19) business impact. Retrieved February 8, 2023, from https://www.accenture.com/za-en/about/company/coronavirus-business-economic-impact

Acharjee, S. (2021). *5 Statistical Analysis Methods - A Detailed Overview (2021)*. Jigsawacademy.com. Retrieved 15 June 2022, from https://www.jigsawacademy.com/blogs/data-science/statistical-analysis-methods/.

Agbo, M. O., & Adu, P. K. (2020). The impact of the COVID-19 pandemic on mobile banking adoption in South Africa. *Journal of Economics and Behavioural Studies*, 12(6), 29-38.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.

Akhtar, N., Nadeem Akhtar, M., Usman, M., Ali, M., & Iqbal Siddiqi, U. (2020). Covid-19 restrictions and consumers' psychological reactance toward offline shopping freedom restoration. *The Service Industries Journal*, 40(13–14), 891–913. https://doi.org/10.1080/02642069.2020.1790535

Alhajjaj, H., & Mohammad Khalaf Ahmad, A. (2022). Drivers of the consumers adoption of Fintech services. *Interdisciplinary Journal of Information, Knowledge, and Management*, 17, 259–285. https://doi.org/10.28945/4971

Altadonna, N. (2019). *Technology Adoption Explained | Apty*. Apty.io. Retrieved 29 May 2022, from https://www.apty.io/blog/technology-adoption-explained#What-is-Technology-Adoption.

Baicu, C., Gârdan, I., Gârdan, D., & Epuran, G. (2020). The impact of COVID-19 on consumer behavior in retail banking. Evidence from Romania. *Management & Marketing. Challenges For the Knowledge Society*, *15*(s1), 534-556.

BusinessTech. (2021). Retrieved 28 May 2022, from https://businesstech.co.za/news/banking/528152/battle-of-the-banks-capitec-vs-standard-bank-vs-fnb-vs-absa-vs-nedbank/.

Bland, J., & Altman, D. (1997). Cronbach's alpha. *BMJ*, 314(7080), 572–574. https://doi.org/https://doi.org/10.1136/bmj.314.7080.572

Bollen, K. A., & Long, J. S. (1993). Testing structural equation models. Sage Publications.

Boshoff, J., & Boon, S. (2021). The impact of COVID-19 on consumer payment behavior in South Africa. *South African Journal of Business Management*, 52(1), 1-15.

Boston Consulting Group. (2021). The business impact of covid-19. Retrieved February 8, 2023, from https://www.bcg.com/featured-insights/covid-19

Botha, I., Fourie, F., & Pretorius, L. (2018). Consumer adoption of mobile banking services in South Africa: An empirical investigation. *South African Journal of Business Management*, 49(1), 1-13.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. Sociological methods & research, 22(2), 230-258.

Brown, I., Cajee, Z., Davies, D., & Stroebel, S. (2003). Cell phone banking: predictors of adoption in South Africa—an exploratory study. *International Journal of Information Management*, *23*(5), 381-394. https://doi.org/10.1016/s0268-4012(03)00065-3

Byrne, B. M. (2012). *Structural Equation Modelling with Mplus: Basic Concepts, Applications, and Programming*. New York, NY: Routledge.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56(2), 81–105.

Chakiso C. (2019). Factors affecting attitudes towards the adoption of mobile banking: Users and non-users perspectives. *EMAJ: Emerging Markets Journal*, 9(1), 54–62.

Chang, Y., Wong, S. F., Lee, H., & Jeong, S. P. (2016). What motivates Chinese consumers to adopt Fintech services. Proceedings of the 18th Annual International Conference on Electronic Commerce E-Commerce in Smart Connected World - ICEC '16. https://doi.org/10.1145/2971603.2971643

Chiramba, T., & Chigwenya, T. (2020). Examining the determinants of mobile banking adoption in South Africa. *Journal of Economics and Behavioural Studies*, 12(5), 89-100.

Du, Y. (2011). The impact of trust on behavioral intention to use mobile banking in China. *Journal of Electronic Commerce Research*, 12(1), 57-72.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334. https://doi.org/10.1007/bf02310555

Cruz-Cárdenas, J., Zabelina, E., Guadalupe-Lanas, J., Palacio-Fierro, A., & Ramos-Galarza, C. (2021). COVID-19, consumer behavior, technology, and society: A literature review and bibliometric analysis. *Technological Forecasting and Social Change*, *173*, 121179. https://doi.org/10.1016/j.techfore.2021.121179

Cuncic, A. (2021). *Understanding Internal and External Validity*. Verywell Mind. Retrieved 15 June 2022, from https://www.verywellmind.com/internal-and-external-validity-4584479.

Daqar, M., Arqawi, S., & Abu Karsh, S. (2020). Fintech in the eyes of millennials and generation Z (the financial behavior and fintech perception). *Banks and Bank Systems,* 15(3), 20–28. https://doi.org/10.21511/bbs.15(3).2020.03

Davis, F., Bagozzi, R., & Warshaw, P. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, *35*(8), 982-1003. https://doi.org/10.1287/mnsc.35.8.982

De Koker, L., & Du Plessis, E. (2019). The adoption of mobile banking in South Africa: An empirical study. *SA Journal of Information Management*, 21(1), 1-12.

de Villiers, R. (2020). Accelerated Technology Adoption by Consumers During the COVID-19 Pandemic. *Journal Of Textile Science; Fashion Technology*, *6*(5). doi: 10.33552/jtsft.2020.06.000647

Devanesan, M. (2021). Influence Of Promotions and Change in Buyer Behaviour Due to Covid-19 On the Intent to Increase Usage of Digital Payment Systems. *Academy Of Marketing Studies Journal*, *25*(2), 1-16.

Diamantopoulos, A., & Siguaw, J. A. (2006). Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration. *British Journal of Management*, 17(4), 263-282.

Ernst & Young. (2019). Global Review 2020 - EY. Retrieved January 20, 2023, from https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/global-review/2020/ey-global-review-2020-v3.pdf?download

Field, A. (2013). *Discovering statistics using IBM SPSS statistics: And sex, drugs, and rock "n" roll* (4th ed.). Sage Publications.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.

Fu, J., & Mishra, M. (2022). Fintech in the time of COVID−19: Technological adoption during crises. Journal of Financial Intermediation, 50, 100945. https://doi.org/10.1016/j.jfi.2021.100945

Geldenhuys, J. (2020). *Fintech Reshaping the financial world – But what about you? - Moonstone*. Moonstone. Retrieved 17 June 2022, from https://www.moonstone.co.za/fintech-reshaping-the-financial-world-but-what-about-you/.

Genesis Analytics. (2020). *Fintech Scoping in South Africa 2019* (pp. 1-89). Johannesburg: Genesis Analytics. Retrieved from

http://www.treasury.gov.za/comm_media/press/2020/WB081_Fintech%20Scoping%20in%20SA_201 91127_final%20(002).pdf.

Gorsuch, R. L. (2015). *Factor analysis* (2nd ed.). Routledge.

Govender, K., & Pieterse, R. (2021). Fintech adoption in South Africa: A mixed methods study. *International Journal of Bank Marketing*, 39(3), 590-613.

Hadad, S., & Bratianu, C. (2019). Dematerialization of banking products and services in the Digital Era. *Management & Marketing. Challenges for the Knowledge Society*, 14(3), 318–337. https://doi.org/10.2478/mmcks-2019-0023

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate data analysis: *A global perspective*. Pearson Education.

Hayes, A. (2022, December 19). Blockchain facts: What is it, how it works, and how it can be used. Investopedia. Retrieved January 22, 2023, from https://www.investopedia.com/terms/b/blockchain.asp

Hu, Z., Ding, S., Li, S., Chen, L., & Yang, S. (2019). Adoption Intention of Fintech Services for Bank Users: An Empirical Examination with an Extended Technology Acceptance Model. *Symmetry*, *11*(3), 340. https://doi.org/10.3390/sym11030340

Hu, L. T., & Bentler, P. M. (1999). Cut-off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling*, 6(1), 1-55.

Hsu, C. L., & Lu, H. P. (2004). Why do people play on-line games? An extended TAM with social influences and flow experience. Information & management, 41(7), 853-868.

Indeed. (2021). *4 types of Reliability in Research and Tips for Measuring It*. Indeed, Career Guide. Retrieved 15 June 2022, from https://www.indeed.com/career-advice/career-development/reliability-in-research.

Kagan, J. (2020). *Financial Technology – FinTech Definition*. Investopedia. Retrieved 16 June 2022, from https://www.investopedia.com/terms/f/fintech.asp.

Kaur, S., Ali, L., Hassan, M., & Al-Emran, M. (2021). Adoption of digital banking channels in an emerging economy: exploring the role of in-branch efforts. Journal Of Financial Services Marketing, 26(2), 107-121. doi:10.1057/s41264-020-00082-w

Khuong, N., Phuong, N., Liem, N., Thuy, C., & Son, T. (2022). Factors Affecting the Intention to Use Financial Technology among Vietnamese Youth: Research in the Time of COVID-19 and beyond. *Economies*, *10*(3), 57. https://doi.org/10.3390/economies10030057

Kline, R. B. (2016). *Principles and practice of structural equation modelling*. The Guilford Press.

Kshetri, N. (2018). Blockchain's roles in meeting key supply chain management objectives. International Journal of Information Management, 39, 80-89.

Le, M. (2021). Examining factors that boost intention and loyalty to use Fintech post-COVID-19 lockdown as a new normal behavior. Heliyon, 7(8), 1-9. doi: 10.1016/j.heliyon. 2021.e07821

Lee, M. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, *8*(3), 130-141.

https://doi.org/10.1016/j.elerap.2008.11.006

Lee, W. (2018). Understanding Consumer Acceptance of Fintech Service: An Extension of the TAM Model to Understand Bitcoin. *IOSR Journal of Business and Management*, *20*(7), 34-37. https://doi.org/DOI: 10.9790/487X-2007023437

Li, Y., Spigt, R., & Swinkels, L. (2017). The impact of FinTech start-ups on incumbent retail banks' share prices. *Financial Innovation*, *3*(1). https://doi.org/10.1186/s40854-017-0076-7

Luarn, P., & Lin, H. (2005). Toward an understanding of the behavioural intention to use mobile banking. *Computers in Human Behavior*, 21(6), 873-891.

Mathe, N. (2021). Insights from 'Unlocking COVID-19 current realities, future opportunities: Artificial intelligence in the time of COVID-19'. *South African Journal of Science*, *117*(3/4). https://doi.org/10.17159/sajs.2021/9311

Matsepe, N., & Van der Lingen, E. (2022). Determinants of emerging technologies adoption in the South African financial sector. *South African Journal of Business Management*, *53*(1). https://doi.org/10.4102/sajbm.v53i1.2493

McKinsey & Company. (2020). Retrieved 28 May 2022, from https://www.mckinsey.com/featured-insights/coronavirus-leading-through-the-crisis/charting-the-path-to-the-next-normal/COVID-19-has-made-south-africans-much-more-comfortable-with-online-banking.

Mehta, S., Saxena, T., & Purohit, N. (2020). The New Consumer Behaviour Paradigm amid COVID-19: Permanent or Transient? *Journal Of Health Management*, *22*(2), 291-301. https://doi.org/10.1177/0972063420940834

Mhlanga, D. (2021). The Fourth Industrial Revolution and COVID-19 Pandemic in South Africa: The Opportunities and Challenges of Introducing Blended Learning in Education. *Journal Of African Education*, *2*(2), 15-42. https://doi.org/10.31920/2633-2930/2021/v2n2a1

McKinsey & Company. (2020). How COVID-19 has pushed companies over the technology tipping point-and transformed business forever. Retrieved February 8, 2023, from https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/how-covid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever

Nawayseh, M. (2020). FinTech in COVID-19 and Beyond: What Factors Are Affecting Customers' Choice of FinTech Applications? *Journal Of Open Innovation: Technology, Market, And Complexity*, *6*(4), 153. https://doi.org/10.3390/joitmc6040153

Ndubisi, N. O., & Sinti, C. (2018). Mobile banking adoption in Nigeria: The role of perceived usefulness and perceived ease of use. *International Journal of Bank Marketing*, 36(3), 528-543.

Ojo, A., & Misra, S. (2020). The effect of perceived risk on the adoption of mobile banking services in South Africa. *Journal of Economics and Behavioural Studies,* 12(6), 17-28.

Ondrus, J., & Pigneur, Y. (2018). Factors influencing the adoption of mobile payment services: A meta-analysis. *Journal of Business Research*, 92, 341-353.

*PayFlex Shopper FAQ's | Get Answers to Your Questions*. PayFlex. (2022). Retrieved 17 June 2022, from https://payflex.co.za/shopper-faqs/?gclid=Cj0KCQjwzLCVBhD3ARIsAPKYTcRCPSXjTB4YrsJEFzRJCjGKDf157tSrzs2dbSl31lKlV19DV3Q1w8AaAs-JEALw_wcB.

Phaneuf, A. (2022). *The future of retail, mobile, online, and digital-only banking technology in 2022*. Insider Intelligence. Retrieved 28 May 2022, from https://www.insiderintelligence.com/insights/future-of-banking-technology/.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.

Puschmann, T. (2017). Fintech. Business & Information Systems Engineering. *Business & Information Systems Engineering*, *59*(1), 69-76. https://doi.org/10.1007/s12599-017-0464-6

PwC. (2021). South African Banks: Responding to COVID-19. Retrieved from https://www.pwc.co.za/en/assets/pdf/south-african-banks-responding-to-covid-19.pdf

PWC. (2022). *South Africa - Major Banks Analysis 2021* (pp. 1-20). Johannesburg. Retrieved from https://www.pwc.co.za/major-banks-analysis

Rajczyk, A. (2021). *What are the types of FinTech? What's worth knowing? - BinarApps*. BinarApps. Retrieved 16 June 2022, from https://binarapps.com/what-are-the-types-of-fintech-whats-worth-knowing/.

Raykov, T. (1997). Estimation of composite reliability for congeneric measures. *Applied Psychological Measurement*, 21(2), 173-184.

SABRIC. (2021). South African Banking Industry Risk Report. Retrieved 16 February 2023 from https://www.sabric.co.za/media-centre/publications/sabric-risk-reports/

SARB. (2020). *Fintech*. Resbank.co.za. Retrieved 17 June 2022, from https://www.resbank.co.za/en/home/quick-links/fintech.

Servest South Africa. (2021). *Post COVID-19, digitisation will no longer be optional but an indispensable operational requirement*. Servest South Africa. Retrieved 17 June 2022, from https://www.servest.co.za/facilities-insights/post-COVID-19-digitisation-will-no-longer-be-optional-butan- indispensable-operational-requirement.

Shaikh, I., Qureshi, M., Noordin, K., Shaikh, J., Khan, A., & Shahbaz, M. (2020). Acceptance of Islamic financial technology (FinTech) banking services by Malaysian users: an extension of technology acceptance model. *Foresight*, *22*(3), 367-383. https://doi.org/10.1108/fs-12-2019-0105

Sheth, J. (2020). Impact of COVID-19 on consumer behavior: Will the old habits return or die? *Journal Of Business Research*, *117*, 280-283. https://doi.org/10.1016/j.jbusres.2020.05.059

Singh, S., Sahni, M., & Kovid, R. (2020). What drives FinTech adoption? A multi-method evaluation using an adapted technology acceptance model. *Management Decision*, *58*(8), 1675-1697. https://doi.org/10.1108/md-09-2019-1318

Slazus, B., & Bick, G. (2021). Factors that Influence FinTech Adoption in South Africa: A Study of Consumer Behaviour towards Branchless Mobile Banking. *Athens Journal of Business & Economics*, *8*(1), 429-450. https://doi.org/10.30958/ajbe.8-1-3

Spector, P. E. (2006). Method variance in Organizational Research. *Organizational Research Methods*, 9(2), 221–232. https://doi.org/10.1177/1094428105284955

Statista. (2022). South Africa: Internet users by 2022. Distribution of internet users in South Africa in 2021. https://www.statista.com/statistics/1341019/distribution-of-internet-users-in-south-africa

Statistics Solutions. (2013). Confirmatory Factor Analysis. Retrieved from https://www.statisticssolutions.com/academic-solutions/resources/directory-of-statistical-analyses/confirmatory-factor-analysis/

Stewart, H., & Jürjens, J. (2018). Data security and consumer trust in FinTech innovation in Germany. *Information & Computer Security*, *26*(1), 109-128. doi: 10.1108/ics-06-2017-0039

Streiner, D. L. (2003). Starting at the beginning: An introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment*, 80(1), 99–103. https://doi.org/10.1207/s15327752jpa8001_18

Sulkowski, L. and Ignatowski, G., (2020). Impact of COVID-19 Pandemic on Organization of Religious Behaviour in Different Christian Denominations in Poland. *Religions*, 11(5), pp.254-269.

Theunissen, G. (2021). *Cryptocurrencies will soon be subject to SA's exchange control measures.* BusinessLIVE. Retrieved 17 June 2022, from h https://www.businesslive.co.za/bd/markets/2021-01-25- cryptocurrencies-will-soon-be-subject-to-sas-exchange-control-measures/.

Tian, D., Sun, Y., Xu, H., & Ye, Q. (2020). The emergence and epidemic characteristics of the highly mutated SARS-COV-2 omicron variant. *Journal of medical virology*. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9015498/

Tsai, H., Yang, Y., & Cheng, C. (2020). Examining the antecedents and outcomes of fintech adoption: Evidence from Taiwan. *Journal of Business Research*, 114, 304-312. https://doi.org/10.1016/j.jbusres.2020.03.033

Tshabalala, M., & Beharry-Ramraj, A. (2021). Examining the 4th Industrial Revolution and South Africa Youth Entrepreneurship Linkage to Covid 19: Opportunities and Challenges. *Gender And Behaviour*, *19*(1), 25-38.

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, 39(2), 273-315.

Watson, R. (2015). Quantitative research. *Nursing Standard*, 29(21). https://doi.org/DOI:10.7748/ns.29.31.44.e8681

Wang, D., Liu, Y., Yu, L., Wei, Y., & Shi, Y. (2020). Understanding consumer adoption of artificial intelligence in online shopping. *Journal of Business Research*, 113, 124-134.

Werner-Lewandowsk, K., Lubinski, P., & Sloniec, J. (2021). The Effect of COVID-19 on Consumer Behavior in Poland - Preliminary Research Results. *EUROPEAN RESEARCH STUDIES JOURNAL*, *XXIV* (Special Issue 2), 405-416. https://doi.org/10.35808/ersj/2272

World Bank Group. (2022). Global Findex database 2021 reports increase in financial inclusion around the world during the COVID-19 pandemic. Retrieved February 8, 2023, from https://www.worldbank.org/en/news/feature/2022/07/21/covid-19-boosted-the-adoption-of-digital-financial-services

Zhou, T., Lu, Y., & Wang, B. (2010). Integrating TTF and UTAUT to explain mobile payment user adoption. *Computers in Human Behavior*, 26(3), 760-767.

# APPENDIX A: PARTICIPANT INFORMATION SHEET




Dear Sir / Madam

My name is Nothando L Magagula, and I am a Master's student in Digital Business at the University of the Witwatersrand, Johannesburg. As part of my studies, I have to undertake a research project, and I am investigating Consumer Acceptance of Financial Technology in the South African Banking Sector during the COVID-19 pandemic under the supervision of Dr Nakuze Chalomba. The aim of this research study is to find out Consumer Acceptance of Fintech in SA banking.

As part of this project, I would like to invite you to take part in an answering a survey with 30 questions. This activity will involve you answering questions on an online survey and will take around 15 -20 minutes.

Please note, by clicking the next arrow & completing this survey means you consent to participate in the study and the following:

- I am +18 years old
- I have read and understood the information sheet
- I understand that my data will be anonymous with regards to identity
- I understand that my participation in the study is voluntary.

There will be no personal costs to you if you participate in this project, you will not receive any direct benefits from participation but there are no disadvantages or penalties if you do not choose to participate or if you withdraw from the study. You may withdraw at any time or not answer any question if you do not want to.

The survey will be completely confidential and anonymous as I will not be asking for your name or any identifying information, and the information you give to me will be held securely and encrypted end to end with and password protected and not disclosed to anyone else. I will be referring to your information as part of a trend or analysis of all responses in my final research report. If you experience any distress or discomfort at any point in this process, you are welcome to withdraw from the survey.

If you have any questions during or afterwards about this research, feel free to contact me on the details listed below. If you wish to receive a summary of this report, I will be happy to send it to you. The data from this research project will be stored in my private cloud storage account for three years. With your permission, the data collected from this research project may be used for future research purposes within three years of retention. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical) telephone at +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za

Yours sincerely,

Researcher: Nothando Linnet Magagula

2369299@students.ac.za

Supervisor:

Nakuze Chalomba

Nakuze.chalomba@wits.ac.za

# APPENDIX B: PARTICIPANT CONSENT FORM

**Research Title:** *Consumer Acceptance of Fintech Services in the South African banking sector: A COVID-19 Context*

**Researcher Name:** *Nothando L Magagula*

I, ……..., agree to participate in this research project. The research has been explained to me, and I understand what my participation will entail. I agree to the following:

(Please circle the appropriate options below).

| | | |
|---|---|---|
| I agree that my participation will remain anonymous. | YES | NO |
| I agree that the researcher may use anonymous quotes in his / her research report. | YES | NO |
| I agree that the interview may be audio recorded. | YES | NO |

| | | |
|---|---|---|
| I agree that the information I provide may be used anonymously after this project has ended, for academic purposes | YES | NO |

…… (signature)

…… (name of participant)

…… (date)

…… (signature)

…… (name of person seeking consent)

…… (date)

# APPENDIX C: INSTRUMENT - SURVEY

I am a final year Masters of Management in Digital Business student at Wits Business School and require your assistance in participating in this survey for data collection.

The survey aims to gain insight into the ***Consumer acceptance of Fintech services in the South African banking sector: A COVID-19 Context.***

The survey is anonymous, and all data collected will be solely for the use of the research. The survey will take approximately 15 - 20 mins to complete.

Potential participants will be contacted via the Wits University email listing; there will be no incentives for participants, and informed consent will be obtained electronically on the first page, where the detail of the study and purpose will be documented.

If formal written consent (or electronically) cannot be obtained, that data will not be used as part of the study.

**Survey Informed Consent:**

I confirm that I am above 18 years of age and consent to surveying with the complete understanding that all information provided will remain anonymous.

Thank you for taking the time to participate in this study. Please note that completing and submitting this questionnaire means you consent to participate in the study. By clicking “I agree” below, you consent to the following:

- I am 18 years old.
- I have read and understood the information sheet.
- I understand that my data will be anonymous.
- I understand that my participation in the study is voluntary.

The Survey will be broken down into the following sections:

The questionnaire consists of 35 questions.

Section A Demographics

Section B COVID-19 Pandemic, Consumer Behaviours, and Use of Fintech Services in Banking

Section C Technology Acceptance Model Constructs

**Section A Demographics**

The general demographic details will be a drop-down list & free text on “Occupation”.

1. **What is your age?**
    A. 18 – 24 years old
    B. 25 – 34 years old

C. 35 – 44 years old
D. 45 – 54 years old
E. 55 – 64 years old
F. 65 – 74 years old
G. 75 years or older

**2. Please specify your ethnicity:**

A. Asian
B. Black / African
C. Coloured
D. White
E. Other: Please specify

**3. What gender do you identify as:**

A. Male
B. Female
C. I prefer not to answer.

**4. What is your highest level of education?**

A. No schooling completed.
B. High School/ Matric Certificate
C. Diploma
D. Bachelor's Degree
E. Honours Degree
F. Master's Degree
G. Doctorate Degree

**5. Employee Status**

A. Unemployed
B. Student
C. Self-employed
D. Employed

E. Seeking Opportunities

6. **Occupation**
   A. Free Text
   B. Prefer Not to Answer

7. **Geographical Location by Province**
   A. Mpumalanga
   B. Gauteng
   C. Kwa-Zulu Natal
   D. Northern Cape
   E. Eastern Cape
   F. Limpopo
   G. Western Cape
   H. North West
   I. Free State

**Section B COVID-19 Pandemic, Consumer Behaviours, and Use of Fintech Services in Banking**

These questions will be Yes/ No, and some will be a 5-point Likert scale.

8. **Before** the COVID-19 pandemic (pre-2020), how would you rate your exposure to & usage of technology?
   A. 0% exposure to technology
   B. 25 % exposure to technology
   C. 50% exposure to technology
   D. 75% exposure to technology
   E. 100% exposure to technology

9. **During** the COVID-19 pandemic (post-2020), how can you rate your exposure to & usage of technology?

1. 0% exposure to technology
2. 25 % exposure to technology
3. 50% exposure to technology
4. 75% exposure to technology
5. 100% exposure to technology

10. What South African banking institution do you make use of? (Please choose your primary bank account)
    A. Standard Bank
    B. ABSA
    C. FNB
    D. Capitec
    E. Nedbank
    F. Discovery Bank
    G. Other: Please specify
    H. I do not make use of Banking Services
11. Did you physically visit a bank during the pandemic period?
    A. Yes
    B. No
12. If yes, please state the bank name & what you went to the bank for from the list below:

| BANK | BANKING SERVICE |
|---|---|
| A. Standard Bank | A. Credit Enquiry / Loan Enquiry |
| B. ABSA | B. Savings Enquiry |
| C. FNB | C. Insurance / Policy Enquiry |
| D. Capitec | D. New Account / Application Enquiry |
| E. Nedbank | E. Collection of Bank Card |
| F. Discovery Bank | F. Investment Enquiry |

| | |
|---|---|
| G. Other: Please specify | G. Other: Please specify |

13. Do you currently use financial technology (FINTECH) services?
    A. Yes
    B. No
14. Please rate your use of the following Fintech services **before** the COVID-19 pandemic (pre-2020)
    A. 0% usage of Fintech
    B. 25 % usage of Fintech
    C. 50% usage of Fintech
    D. 75% usage of Fintech
    E. 100% usage of Fintech
15. Please rate your use of the following Fintech services **during** the COVID-19 pandemic (pre-2020)
    F. 0% usage of Fintech
    G. 25 % usage of Fintech
    H. 50% usage of Fintech
    I. 75% usage of Fintech
    J. 100% usage of Fintech

16. **Before** the COVID-19 pandemic, I made use of the following financial technologies:
    A. Digital Lending and Credit
    B. Internet/Mobile Banking
    C. Mobile /Digital Wallet (Apple Pay, Samsung Pay etc.)
    D. Insurtech (Insurance taken and claims made using digital technologies)
    E. Cryptocurrencies (Bitcoin, Dogecoin etc.)
    F. Blockchain
    G. Digital Wealth Management

17. **During** the COVID-19 pandemic, I make use of the following financial technologies:
    A. Digital Lending and Credit
    B. Internet/Mobile Banking
    C. Mobile/ Digital Wallet (Apple Pay, Samsung Pay etc.)
    D. Insurtech (Insurance taken and claims made using digital technologies)
    E. Cryptocurrencies (Bitcoin, Dogecoin etc.)
    F. Blockchain
    G. Digital Wealth Management

18. Did you use your digital banking services more during the pandemic or before?
    A. More before pandemic
    B. More during the pandemic

19. What do you mainly use financial technology services for? Choose Top 3
    A. To Save
    B. To Invest
    C. To Insure
    D. To Purchase Online
    E. To obtain Credit
    F. For Trading/ Stock Markets
    G. Financial Advisory via Artificial Intelligent Agents (Bots etc.)

**Section C Technology Acceptance Model constructs derived from previous studies.**

### i. PERCEIVED USEFULNESS

| | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| PU1 | During the COVID-19 pandemic the use of financial technology (Fintech) services increased the usefulness of my banking services | 1 | 2 | 3 | 4 | 5 |
| PU2 | During the COVID-19 pandemic the use of financial technology (Fintech) services increased the quality of my banking services | 1 | 2 | 3 | 4 | 5 |
| PU3 | Using financial technologies is advantageous. | 1 | 2 | 3 | 4 | 5 |

### ii. PERCEIVED EASE OF USE

| | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| PEU1 | Using Fintech is clear and understandable. | 1 | 2 | 3 | 4 | 5 |
| PEU2 | Fintech services make banking easy and convenient for me. | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| PEU3 | Fintech is easy to use | 1 | 2 | 3 | 4 | 5 |
| PEU4 | Using Fintech services meets my immediate financial and banking needs | 1 | 2 | 3 | 4 | 5 |

### iii. TRUST (TRU)

| | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| TRU1 | I trust that my personal data is safe and secure with my current banking institution. | 1 | 2 | 3 | 4 | 5 |
| TRU2 | I trust my bank's online / internet banking services? | 1 | 2 | 3 | 4 | 5 |
| TRU3 | Overall, I believe Fintech services are trustable | 1 | 2 | 3 | 4 | 5 |

### iv. BEHAVIOURAL INTENTION (BI)

| | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| BI1 | I make use of fintech services for my banking financial needs | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| BI2 | I see great benefits in using fintech services | 1 | 2 | 3 | 4 | 5 |
| BI3 | I am familiar of fintech services offered by my banking institution | 1 | 2 | 3 | 4 | 5 |

### v. PERCEIVED RISK (PR)

| | | **Strongly disagree** | **Disagree** | **Neutral** | **Agree** | **Strongly agree** |
|---|---|---|---|---|---|---|
| PR1 | I think using Fintech services is risky. | 1 | 2 | 3 | 4 | 5 |
| PR2 | I believe using fintech services exposes me to privacy and financial risk | 1 | 2 | 3 | 4 | 5 |
| PR3 | I believe that the money is easy to be stolen by using Fintech services. | 1 | 2 | 3 | 4 | 5 |

### vi. USER INNOVATIVENESS (UI)

| | | **Strongly disagree** | **Disagree** | **Neutral** | **Agree** | **Strongly agree** |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| UI1 | When a new Fintech banking feature or service is launched, I find ways to explore it | 1 | 2 | 3 | 4 | 5 |
| UI2 | Among my peers I am usually the first one to try a new product or service | 1 | 2 | 3 | 4 | 5 |
| UI3 | I am going to keep making use of Fintech services even after the pandemic? | 1 | 2 | 3 | 4 | 5 |
| UI4 | Banks without Fintech services don't attract me. | 1 | 2 | 3 | 4 | 5 |

| | | **Strongly disagree** | **Disagree** | **Neutral** | **Agree** | **Strongly agree** |
|---|---|---|---|---|---|---|
| PCOV1 | The COVID 19 pandemic affected MY lifestyle | 1 | 2 | 3 | 4 | 5 |
| PCOV2 | The COVID-19 pandemic restrictions changed the way I handled my finances. | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| PCOV3 | The COVID-19 pandemic restrictions helped change my perception on fintech services. | 1 | 2 | 3 | 4 | 5 |

**vii. PERCEPTION OF COVID-19 PANDEMIC (PCOV)**

| | | **Strongly disagree** | **Disagree** | **Neutral** | **Agree** | **Strongly agree** |
|---|---|---|---|---|---|---|
| FA1 | The COVID-19 pandemic accelerated my acceptance and use of Fintech technologies. | 1 | 2 | 3 | 4 | 5 |
| FA2 | I am going to keep making use of Fintech services even after the pandemic? | 1 | 2 | 3 | 4 | 5 |
| FA3 | I have a good acceptance to using financial technologies | 1 | 2 | 3 | 4 | 5 |
| FA4 | I now use Fintech services to purchase online during Covid19 lockdown. | 1 | 2 | 3 | 4 | 5 |

# APPENDIX D: ETHICS APPROVAL NOTIFICATION

**Graduate School of Business Administration**
**University of the Witwatersrand, Johannesburg**

**Wits Business School Ethics Committee**
Constituted under the University Human Research Ethics Committee (Non-Medical)

## Ethics Clearance Certificate

**Ethics protocol number:** WBS/DB2369299/510
*This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).*

| | |
|---|---|
| **Project title** | Consumer acceptance of fintech services in the South African banking sector in the context of COVID-19 |
| **Investigator / Researcher** | MS NOTHANDO MAGAGULA |
| **Nature of Project** | MM (Digital Business) |
| **Decision of the Committee** | Approved, provided stakeholders and participants are guaranteed confidentialty. |
| **Issue Date of Certificate** | 2022-08-17 |
| **Expiry date** | Date of submission of the project / research report |
| **Chairperson** | Prof Anthony Stacey<br>☎ +27 11 717 3587<br>+27 82 880 4531<br>anthony.stacey@wits.ac.za |

**Declaration by Researcher**

*One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.*

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

2022-08-24
Date: