

Financial Technology's Role in Attaining Financial Inclusion: Empirical Findings from Egypt

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Abstract: The focus of that research is to investigate the precedents of financial inclusion enabled by financial technology, specifically mobile payment. To evaluate the research model, 424 Egyptian individuals were polled online using structural equation modeling, the core findings suggest that individuals' behavioral intentions to use and embrace mobile money technology are positively influenced by the following: social influence, habit effort expectancy, and facilitating conditions. While performance expectations, price, and hedonic motivators have no impact on behavior intention. Service charge and service trust, service charge and agent trust have a beneficial impact on perceived risk. Furthermore, the influence of behavioral intention and risk perception on the adoption of mobile money and its subsequent impact on financial inclusion is positive. While prior research has examined the factors influencing mobile payment usage behavior in isolation, the present study aims to fill a gap in the literature by proposing a comprehensive framework that explores the potential relationships among these factors. This expanded framework has not been sufficiently investigated in previous empirical studies conducted in developing countries, specifically within the context of mobile money technology. By experimentally analyzing these linkages, this work is one of the attempts to develop the prospect theory and unified theory of acceptance and use of technology (UTAUT2) to uncover precursors to mobile money usage and adoption to achieve financial inclusion.

Keywords: A unified theory2, mobile payment, theory of prospect, FI, Fintech.

1. RESEARCH BACKGROUND

Observes that, despite widespread advancement, many people still lack accessibility to financial services. Moreover, the global accessibility of financial services exhibits a significant discrepancy as stated by Demirgüç-Kunt, (2018). Fintech, a technology advancement, has arisen as a solution to the challenges associated with obtaining financial products and services stated by World Bank, (2018). To provide and facilitate financial products and services via numerous Internet, mobile money, and payment cards FinTech is a novel and evolving invention (Hinson et al., 2019; Makina, 2019). Rising levels of digitization across numerous facets of society along with change in behavior among consumers both contributed to this acceleration of technological innovation of conventional financial services.

Massive improvements in ICT have spurred expansions in digital transformation, financial technology, or fintech, for short and financial inclusion. In accordance with Elwkeel and Esawe's (2020) research, changes in the digital realm occur gradually over time. giving rise to novel types and actions. In addition, the field of financial technology (Fintech) is experiencing significant growth in both developed and developing nations. Fintech has consistently held a pivotal position within the financial services sector, as it effectively combines technological advancements with financial aspects. Moreover, it addresses limitations that con-

ventional payment methods have been unable to conquer (Esawe, 2022a).

Fintech is the provision of financial services using technological platforms, such as cellular phones, as discussed by Demirgüç-Kunt, (2018) and Gai et al., (2018). The primary idea of this research is to examine what is known as mobile payment, an application of financial technology (fintech) innovation which enables the execution of financial operations using mobile devices (Donovan, 2012).

FinTech is believed to improve financial inclusion (known as FI) by cutting costs, extending market reach, and enhancing access to financial services in rural regions with weak conventional banking institutions. Thus, digital financial transformation is advised for financial inclusion (Queralt et al., 2017; Makina, 2019; Zetzsche, 2019; Baber, 2020). Financial technology (FinTech) in payment, insurance, long-term financing for projects and firms, and investment and saving products can help achieve the UN's Goals for sustainability (SDGs), according to Zetzsche, (2019).

Grohmann, (2018) believed that the capability of fintech, specifically mobile payment also known as mobile money, to alleviate poverty and enhance economic growth is highly regarded by United Nations. However, it is imperative to extensively comprehend the behavioral and technological precedents that impact the implementation of innovation. At now, the widespread use and utilization of mobile money technology is very restricted as contrasted to other cash-based schemes.

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Furthermore, it should be noted that mobile payment has inherent hazards that have the potential to drive loss to one's financial assets as stated by Osei-Assibey, (2015). In addition, there exists a certain degree of reluctance among individuals to adopt mobile money operations, mostly attributed to the intangible character of this technological advancement (Baganzi and Lau, 2017). A significant number of individuals, particularly those residing in developing countries, nevertheless have limited availability of financial products and services due to several factors. To promote greater acceptability and utilization of mobile money services, service providers must possess a comprehensive understanding of the precedents that affect the uptake and utilization of such services (Demirgüç-Kunt, 2018).

To date, scholarly attention in the field of mobile money has primarily centered on the examination of individuals' desire to adopt this innovation (Chauhan, 2015; Upadhyay and Jahanyan, 2016; Narteh et al., 2017). However, there exists a dearth of studies investigating the factors that precede and influence the actual usage of mobile money services. The foremost goal of this research paper is to address the current vacuum in the literature by examining the precedents that influence the actual usage of mobile payment technology. It is important to note that users' intentions do not always align with their actual behavior, therefore necessitating a deeper investigation into the precedents of mobile money technology usage (Jang et al., 2016). Furthermore, some of the previous research on mobile payment has predominantly utilized theories of technological acceptance, which prioritize identifying characteristics that are expected to drive the utilization of mobile money services (e.g., Tobbin and Kuwornu, 2011 and Osei-Assibey, 2015). Hence, there is a lack of comprehensive research on additional behavioral precedents that either facilitate or impede the uptake and utilization of technology.

The widespread use of mobile payment technology inherited complex interactions between technological advancements and human behavior. However, limited scholarly attention has been devoted to discussing the utilization of mobile payment from a dual perspective encompassing technological aspects and behavioral theories. Consequently, it is important to comprehend the precursors of mobile money through a multi-theoretical perspective (Senyo & Osabutey, 2020). The research strives to build upon prior research by examining the factors that influence the utilization of mobile money services in Egypt, using a multi-theoretical perspective. The point is to address the existing gaps in the current state of literature. This study incorporates the Prospect theory and the Unified Theory second Version (known as, UTAUT II) to examine their contribution towards the attainment of financial inclusion. The UTAUT II framework evaluates the technological antecedents, whilst the theory of prospect focuses on the cognition and behavioral dimensions of human technology utilization. Hence, the primary inquiries for investigation are:

Q1. What are the precedents of utilizing mobile payment?

Q2. How does the adoption of FinTech (using mobile payment) influence financial inclusion?

By addressing this study area, our work provides three noteworthy contributions by focusing on this particular field of inquiry. The initial step involves the identification of the precursors of the practical implementation of financial technology (fintech) innovation, specifically in the context of mobile money technology. research findings have significance for both academic research and practical applications, as previous studies have mostly focused on behavioral intention rather than the actual use of fintech advancements. Our second research focuses on examining the effect of motivators and inhibitors on the utilization of fintech technologies. In order to provide a final addition to the discourse around fintech and FI, we present an in-depth derived from dual perspectives; behavioral and technological. The study employs a survey methodology to gather data, which is subsequently subjected to analysis through the application of SEM techniques.

The ensuing sections of the research are constructed in the following subsequent manner. Section 2 of this paper provides a comprehensive assessment of existing research and establishes the theoretical framework upon which this study is built. The study model and hypotheses are outlined in Section 3, with a description of the methodology in Section 4. Discussion is offered in Section 5, while the implications are provided in Section 6, and the conclusion, limitation, and future recommended research are supplied in Section 7.

2. REVIEW OF RELEVANT LITERATURE AND THEORETICAL UNDERPINNINGS

2.1. Enhancing FI with Fintech (Mobile Payment)

Financial inclusion (FI), as defined by the UN, (2019), is the capability of the broader population to avail and utilize a diverse range of financial services in a manner that is both suitable and responsible within a well-regulated framework. Throughout the traditional financial sector, banks and financial institutions serve as the primary means through which organizations and individuals have access to a wide range of financial services. In contemporary society, advancements in technology have facilitated the provision of financial services by non-financial firms, including telecommunication corporations. The aforementioned occurrence is commonly referred to as fintech (Demirgüç-Kunt et al., 2018). The World Bank (2018) asserts that individuals who were excluded from financial services are now experiencing more agency and empowerment as a result of the progress made in fintech.

The lack of consensus about the optimal characterization of financial technology systems from the ongoing expansion of the fintech domain. However, it is worth noting that modern definitions provide a valuable viewpoint. This study adopts the concepts proposed by Jagtiani and Lemieux, (2018). Hence, the term FinTech, as used in this research, encompasses a range of technology-driven business structures, processes, applications, or products that facilitate the efficient provision of financial products and services (Jagtiani and Lemieux, 2018). Mobile payment is often recognized as a significant Fintech that plays a vital role in promoting accessibility to financial services (Peru, 2017).

Senyo et al., (2019) describe a mobile money ecosystem consisting of service providers, merchants, users, agents, regulators, and banks that enable mobile use of financial products and services. Users are people as well as organizations that utilize mobile payment for their financial products and services. Customers can receive mobile money services from service providers, the majority being provided by telecommunications businesses (Maurer, 2012). Merchants are people and organizations that apply cellular payments for their products and services. Agents facilitate mobile payment services such as currency deposits, withdrawals, and transfers by acting as intermediaries between consumers and service providers. Banks serve as administrators as they manage the mobile payment accounts of service providers. Last but not least, regulators are government entities with the authority to control activities inside the ecosystem of the mobile payment industry (Mugambi et al., 2014).

FI, as articulated by the World Bank, encompasses the provision of reasonably priced financial kind services that successfully meet the needs of individuals in a manner that is both sustainable and ethical. Accessibility to financial services is considered by the World Bank to be an extremely essential step in reducing inequality and alleviating poverty. Financial inclusion facilitates individuals in saving for essential family needs, accessing loans to bolster entrepreneurial endeavors, and setting aside funds for unforeseen emergencies. Scholars such as Muto and Yamano, (2009); Aker Mbiti, (2010), and Wesolowski et al., (2012), believed that the availability of financial services plays a vital role in fostering development. This is primarily due to its ability to enhance the availability of resources necessary for economically viable investments and facilitate the management of individual consumerism.

The exorbitant expenses associated with delivering financial services, particularly in rural areas, have posed a significant barrier for many individuals in developing countries to avail themselves of such services. Klapper, (2018) asserts that the proliferation of mobile payment has significantly contributed to the progress of FI. In recent times, individuals have increasingly employed mobile phone services as a means to avail themselves of financial services. A significant proportion of people who lack access to traditional banking services have taken advantage of cellular accounts to access and utilize financial services. According to a research study conducted by Okello Candiya and Ntayi (2020a), making use of virtual financial services, especially mobile money, presents a more comfortable and cost-effective approach compared to conventional financial offerings. This method is particularly advantageous in providing financial services to people residing in rural regions who are mostly excluded from traditional banking services. Mobile payment has the potential to enhance the quality of life for individuals without a bank account or in underserved areas by offering them accessibility to financial services via mobile phones (Chauhan, 2015).

2.2 Precedent Research Regarding Financial Technology (Using Mobile Payment) Along with Financial Inclusion

Senyo, (2016) thought that prior research on mobile payment, such as the studies conducted by Tobbin and Kuwornu, (2011), Osei-Assibey, (2015), Baganzi and Lau, (2017), and Narteh et al., (2017), has predominantly focused

on technological factor while neglecting social precedents. This predicament is also influenced by the excessive dependence on mobile money research about theories of technology acceptance, which primarily emphasize factors that greatly favor the drivers of adoption. As a result, there is a lack of research on the variables that influence the uptake and utilization of mobile payment, including trust services, Accepting risk, doing it as a habit, having hedonic incentives, and evaluating social effects.

While scholars such as Chauhan (2015); Upadhyay and Jahanyan, (2016) have primarily focused on investigating the precedents influencing individuals' intention to use mobile money. However, there is limited understanding regarding the underlying factors, such as habit, effort, and performance expectancy that contribute to the real-life utilization of mobile money in addition they didn't investigate how mobile money services are really utilized. A discrepancy exists between the utilization of technology and the individual's intention to utilize it (Jang et al., 2016). Hence, it is crucial to understand the factors that preceded the utilization of mobile money technology.

Based on preceding research, it has been observed that prevailing studies have predominantly relied on technological utilization theories, whereas the use of behavioral theories has been comparatively less prevalent. Technology adoption theories do not adequately investigate the intricacies of human behavioral features. When examining the precedents of mobile payment utilization, it is crucial to consider the trade-off between positive and negative consequences that influences its utilization.

According to (Prabhakar, 2019) there is a lack of scholarly and policy writings on expanding access to financial services and in-depth analyses of the financial exclusion experience. Various elements of financial inclusion can be clarified with the use of current models suggested by Besley et al., (2019) and Kumar, (2011). But they merely provide a partial explanation of financial inclusion due to its complexity and lack of empirical evidence.

Ozili (2020) echoes this sentiment, who argues that the current theories on financial inclusion primarily consist of practical explanations that lack a specific framework for evaluating their effectiveness and experimentally modeling and utilizing conceptions of financial inclusion for critical analysis. To address this disparity, the present study investigates the impact of Fintech (namely mobile payment) utilization on financial inclusion, employing prospect theory and the unified theory of acceptance and (UTAUT II).

2.3. Applied Theories

Theory of Technology Acceptance (UTAUT II)

User acceptance and technology use may be explained by the unified theory of acceptance and use of technology (UTAUT), which was established by Venkatesh, (2003). The creation of the theory was based on several established academic frameworks, including other technology theories. Verdegem and De Marez (2011) propose the original UTAUT has four fundamental categories, namely facilitating

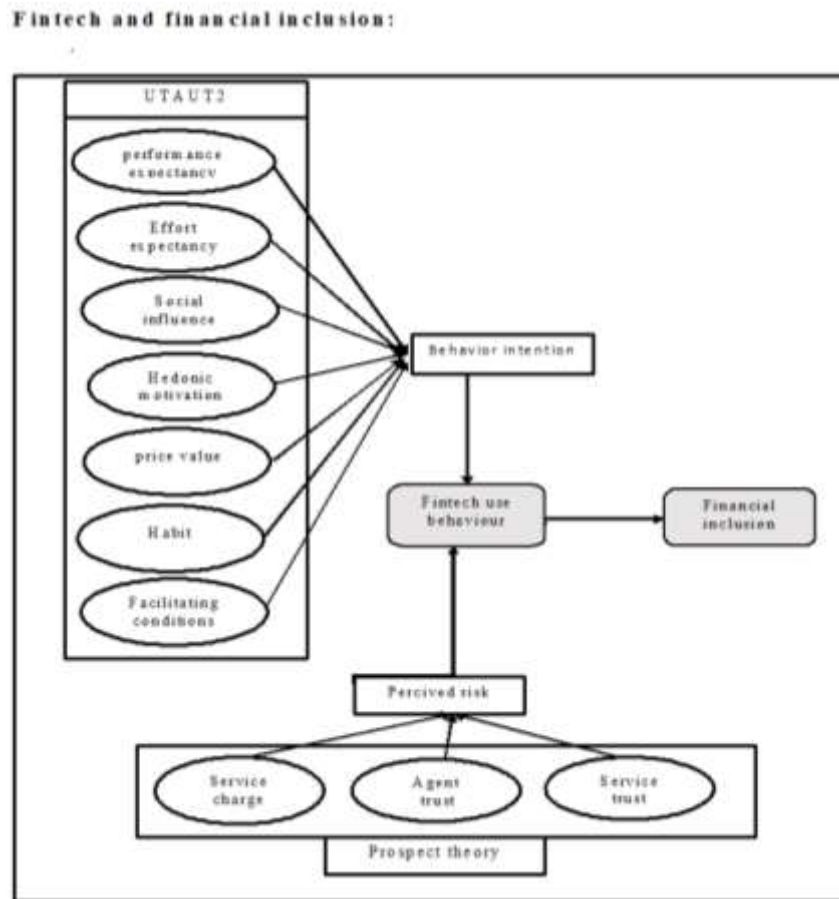


Fig. (1). Research model.

conditions, performance expectancy, social influence, and effort expectancy.

Based on the theory, it is posited that enabling conditions have a direct influence on both utilization behavior and behavioral intention. On the other hand, effort expectations, social influence, and performance expectations are postulated to directly impact behavior intention (Venkatesh et al., 2003). Venkatesh et al., (2012) expanded the original UTAUT by including other supplementary components, price, hedonic motivation, and habit. This modification, known as UTAUT II, enhanced the applicability of the theory in both organizational and individual settings. Moreover, in comparison to the Unified Theory of Acceptance and Use of Technology, UTAUT II incorporates a range of factors that influence behavioral intention and technology usage. The current research used the (UTUAT II) as a theoretical framework due to its comprehensive nature and its ability to effectively identify the elements that precede the acceptance of mobile money. It conducts a full analysis of technology usage precedents, of mobile money technology, it is necessary to augment UTAUT with additional theories, like the theory of Prospect (Dhir et al., 2018 and Oliveira et al., 2016).

Behavioral Theory (Prospect Theory)

The theory of prospect, developed by Kahneman and Tversky, (1979), was formulated to provide a more comprehensive understanding of how humans assess and make deci-

sions when faced with options that involve potential risks and unknown outcomes. It's a cognitive theory, posits that humans' decision-making processes are influenced by considerations of potential gains and losses, rather than only focusing on the ultimate outcome. Consequently, individuals' decision-making processes are occasionally influenced to a greater extent by deterrents, such as dangers, rather than by drivers, as suggested by Tversky and Kahneman, (1992). Therefore, the present study utilizes Prospect theory as a theoretical framework to examine the potential impact of individuals' views of mobile payment on their utilization of this innovative Fintech.

3. DEVELOPING A RESEARCH MODEL AND HYPOTHESES

This presented study builds on the Prospect theory and UTAUT II to analyze the precedents of mobile payment use in the context of achieving FI. researchers such as Lyytinen and Rose, 2003 and Fichman, 2004, agree that it is critical to synthesize theories to have a comprehensive knowledge of phenomena. As a result, we mix the prospect theory and UTAUT II in our investigation as each of these theories offers distinct precedents. As a result, integrating these concepts is a solid viewpoint for uncovering precursors to financial inclusion via fintech innovation using mobile money. Furthermore, these theories work in tandem to answer the research issue. Fig. (1) presents the research model developed.

H1: UTAUT II variables significantly affect behavior intention to use financial technology using mobile payment. To test this main hypothesis through the following:

The term "performance expectancy," coined by Venkatesh et al., (2012), describes the benefits that individuals believe utilizing technology would bring to their ability to carry out routine activities. Whereas effort expectancy relates to how easy it is to utilize technology, Social influence refers to how users believe that friends, family, and other significant individuals expect them to use technology. The term hedonic motivation refers to how enjoyable a technology is to use, while, the perceived value indicates how a user evaluates the cost-benefit of utilizing technology in terms of money, and repetition of behavior causes certain acts to be carried out automatically, which leads to the development of habits and facilitating or enabling conditions are those in which individuals believe that access to technological structures and related support will make it easier for them to employ technology when needed (Venkatesh et al., 2012). According to Ajzen, (2002), a user's behavioral intention is the degree to which they want to carry out a certain action. Hence, the hypotheses:

H1.1 Users' behavioral intent to utilize FinTech through mobile payment is influenced by their expectations of its performance.

H1.2 Users' behavioral intentions to engage with FinTech via mobile payment are affected by their expectations of the level of effort involved in doing so.

H1.3 Users' intentions to use FinTech tools like mobile payment are influenced by their social circles.

H1.4 Users' hedonic incentive affects their behavioral intention to utilize FinTech via mobile payment.

H1.5 Users' behavioral intent to utilize FinTech through mobile payment is influenced by the value of the associated prices.

H1.6 The behavioral intention of users to utilize FinTech through mobile payment is influenced by habits.

H1.7 User behavior and intent to utilize mobile payment-based FinTech is influenced by enabling conditions.

H2: prospect theory variables significantly affect the perceived risk to use financial technology using mobile payment. To test this main hypothesis through the following:

The transaction fee for using Financial Services is a service charge. While Plank et al., (1999) define agent trust as it is the notion that an intermediary can be trusted to fulfill responsibilities as perceived by users and service trust as a customer's conviction in the reliability of services to satisfy obligations. According to Pavlou, (2003), perceived risk as it is the impression of losses linked to the employment of technology. Hence the hypotheses:

H2.1 Service charges affect individual perception of risk using FinTech via mobile payment.

H2.2 Agent trust affect individual perception of risk using FinTech via mobile payment.

H2.3 Service trust affect individual perception of risk using FinTech via mobile payment.

Accordingly, H3,4 and 5 will be hypothesized as follows:

H3 behavior intention influences FinTech via mobile payment

H4 perceived risk influences FinTech via mobile payment

H5 FinTech via mobile payment significantly affects financial inclusion.

4. RESEARCH METHODOLOGY

Egypt, a middle-income country, served as the research context. One of the rapidly expanding mobile money markets is Egypt. Egypt was one of the first developing nations to introduce a cellular network five years ago, and its mobile money markets are currently seeing rapid expansion. The FinTech market in Egypt is now dominated by apps for making and accepting mobile and internet payments, using cards, and connecting to the blockchain. However, a sizable portion of the Egyptian population continues to lack banking access and mostly uses cash for transactions. These distinctive traits of their people are the basis for the selection of Egypt as the research environment.

This study used items experimentally tested in the existing literature to discover precursors of mobile money use. Expectations of performance and effort, as well as price, hedonic motivation, habit, enabling circumstances, social influence, behavioral intention, and mobile payment use, were all from Venkatesh et al., (2012) research. The perceived risk evaluation items utilized in this research were derived from the work of Wu and Wang, (2005). On the other hand, the measurement scales for agent, as well as service trust, were modified from the research done by Gefen et al., (2003), respectively. Additionally, the theoretical underpinnings of mobile payment with FI were developed from a study conducted by Okello Candiya Bongomin and Ntayi in (2020b). The data-collecting instrument employed in this research investigation consisted of a questionnaire that was structured into two distinct segments. The first portion focused on gathering demographic information from the respondents, while the second piece aimed to capture the participants' impressions of each variable included in our theoretical model. Inquiries about demographic factors encompass a person's gender, age, and highest attained degree of education. In contrast, the subsequent section of the survey examines participants' level of agreement or disagreement with statements pertaining to each variable in the empirical model. This assessment is conducted using a Likert with a value of 5, which ranges from 1 (signifying high disagreement) through 5 (signifying high agreement).

The research's empirical emphasis was on Egypt. Data gathering targeted the adult population. Before the primary collection of data, we pilot-evaluated the original questionnaire to determine its literal worth and conceptual validity. Following that, we gathered 46 replies to determine the questionnaire's suitability. We improved the clarity of the questions according to the findings of the preliminary study. The sample was collected from a January 2023 online poll in Egypt. Google Forms was used to create the online survey. Because it is not possible to have a sampling frame for all adult Egyptians, convenience sampling was utilized to acquire the data. We received 424 responses.

4.1. Analysis and Results

The analysis of the data proceeded in the following phases: descriptive, measurement, and structural models. The descriptive analysis of the demographic characteristics of respondents was performed using the SPSS version 28, and the findings are provided in section 4.1.1. The research applied structural equation modeling (SEM) for measurement and structural model analysis. This study employs smart PLS version 4 for data processing. The exploratory character of the investigation influenced the decision. Furthermore, SEM was chosen in this work due to its robustness in dealing with complicated connections (Chin, 1998). Sections 4.1.2 and 4.1.3 give the measurement and structural model analysis results.

Demographic Features

Data analysis was performed for main factors, age distribution, gender type, and degree of education, to better understand the demographics of respondents.

Table1. Frequency and relative distribution of demographic data.

	Frequency	Percent
Gender		
Male	274	64.6
Female	150	35.4
Age		
≤ 18 - 24 years	61	14.4
≤ 25 - 34 years	110	25.9
≤ 35 - 44 years	118	27.8
≤ 45 - 54 years	77	18.2

≤ 55 – 60 years	58	13.7
Highest educational level		
High School	44	10.4
Professional Certificate	24	5.7
First Degree (Bachelor)	260	61.3
Master’s Degree	65	15.3
Doctorate Degree	31	7.3
Total	424	100.0

Findings indicate that males make up a disproportionate share of the sample (64.6%) and females (35.4%) by gender groups. The results show that young adults dominate the sample, with those between the ages of 35 and 44 constituting 27.8%. Finally, education results show that the highest educational level presents 61.3%, the master’s degree grade with 15.3% percent, the High School 10.4% percent, and the Doctorate Degree grade with 7.3% percent. This means that most responders have a higher degree of education.

Measurement Model

The measurement model evaluates composite reliability, discriminant validity, convergent validity, and outer loadings of manifest and latent variables. Composite trustworthiness is calculated using Cronbach's estimate. Cronbach, (1971) and Nunnally (1978) imply composite reliability surpasses 0.70. According to Fornell and Larcker, (1981)'s criterion for determining discriminant validity, diagonal correlation coefficients should be larger than construct correlations. The convergent validity is also assessed using the average variance extracted (AVE). Measurement models were created to evaluate the constructs' convergent and discriminant validity in this study. The results are in Tables 2 and 3.

Table 2. Quality creation (AVE, composite reliability, Cronbach’s alpha).

	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	The Average Variance Extracted (AVE)
Agent Trust	0.922	0.923	0.941	0.761
Behavioral Intention	0.923	0.923	0.946	0.813
Effort Expectancy	0.919	0.921	0.943	0.804
Facilitating Conditions	0.891	0.893	0.932	0.821
Financial Inclusion	0.981	0.981	0.982	0.746
Habit	0.889	0.889	0.931	0.818
Hedonic Motivation	0.868	0.869	0.919	0.791
Mobile Money	0.984	0.984	0.985	0.751
Perceived Risk	0.931	0.932	0.948	0.785
Performance Expectancy	0.888	0.890	0.930	0.817
Service Charges	0.809	0.835	0.887	0.725
Service Trust	0.912	0.913	0.938	0.792
Social Influence	0.879	0.879	0.925	0.805

Table 3. Fornell and Lacker discriminant validity criterion.

Fornell-Larcker criterion	Agent Trust	Behavioral Intention	Effort Expectancy	Facilitating Conditions	Financial Inclusion	Habit	Hedonic Motivation	Mobile Money	Perceived Risk	Performance Expectancy	Price Value	Service Charges	Service Trust	Social Influence
Agent Trust	0.873													
Behavioral Intention	0.854	0.902												
Effort Expectancy	0.789	0.785	0.897											
Facilitating Conditions	0.842	0.854	0.767	0.906										
Financial Inclusion	0.836	0.823	0.789	0.825	0.864									
Habit	0.819	0.853	0.768	0.844	0.804	0.905								
Hedonic Motivation	0.819	0.813	0.742	0.818	0.818	0.818	0.889							
Mobile Money	0.857	0.843	0.792	0.818	0.869	0.813	0.810	0.866						
Perceived Risk	0.859	0.825	0.766	0.841	0.834	0.807	0.813	0.858	0.886					
Performance Expectancy	0.719	0.729	0.762	0.689	0.738	0.744	0.729	0.746	0.731	0.904				
Price Value	0.728	0.735	0.649	0.721	0.688	0.723	0.707	0.700	0.689	0.626	1.000			
Service Charges	0.808	0.810	0.712	0.820	0.799	0.822	0.813	0.779	0.801	0.738	0.703	0.851		
Service Trust	0.877	0.835	0.769	0.819	0.838	0.813	0.803	0.851	0.863	0.733	0.692	0.818	0.890	
Social Influence	0.807	0.806	0.744	0.755	0.782	0.803	0.810	0.821	0.799	0.736	0.697	0.742	0.804	0.897

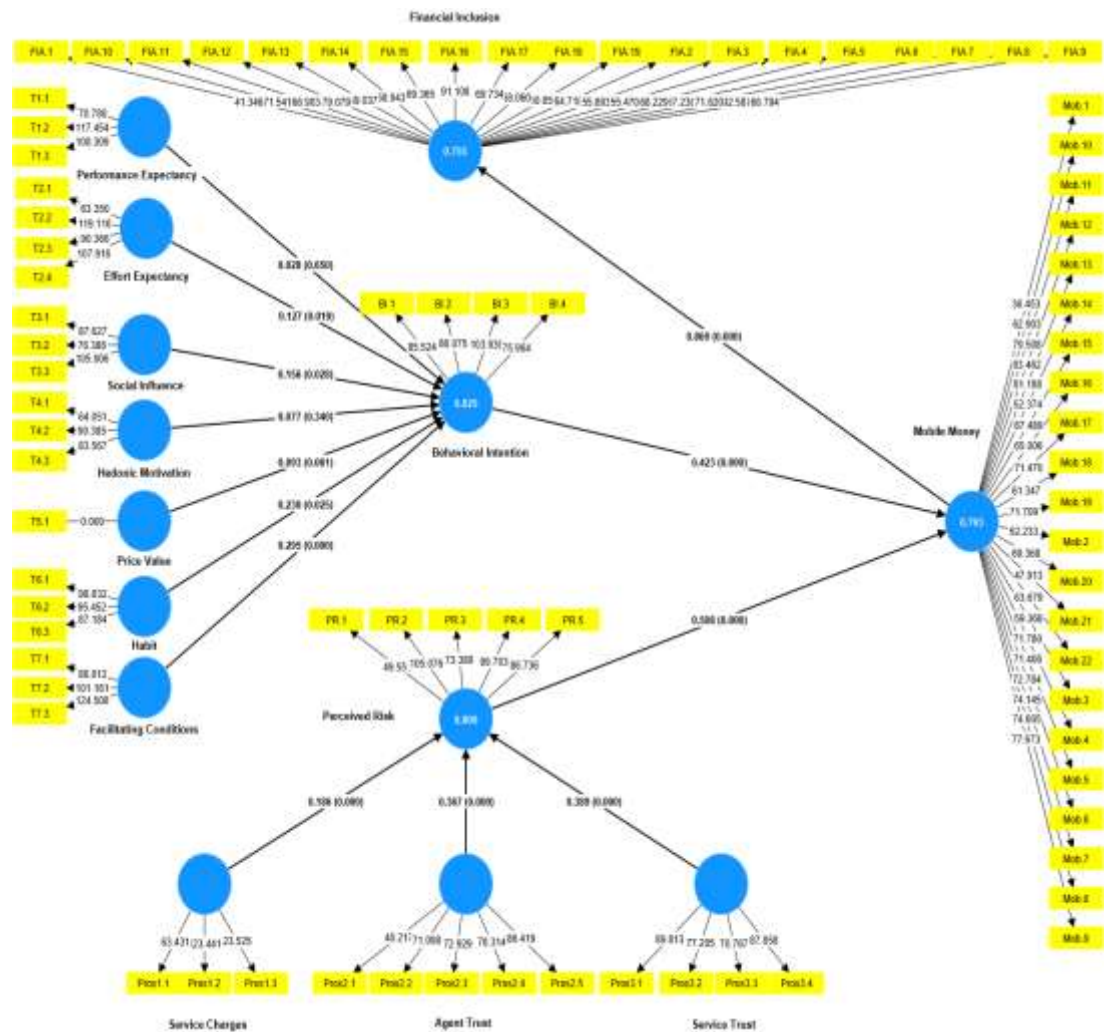


Fig. (2). Result of the structural model.

As predicted by Cronbach (1971) and Nunnally (1978), all variables' composite reliability Cronbach's alpha coefficients must exceed 0.70 in the measurement models. Table 2 shows that mobile payment uptake and utilization and FI had composite reliabilities of 0.984 and 0.981. Additionally, diagonal correlations between variables were larger than correlations between constructs. Table 3 shows that mobile money uptake and usage correlated with 0.866 and financial inclusion with 0.864. This shows that Fornell and LaLarcker's, (1981) discriminant validity standards were upheld. AVE findings also showed manifest and latent variable convergent validity. Table 2 shows that mobile payment uptake and utilization and FI had AVE values of 0.751 and 0.746, respectively.

Structural Model

A SEM is developed in a complex framework to illustrate the interplay between the observable and underlying factors of the primary predictor, mediator, and outcome variables. According to Hair et al., (2016), it is crucial to evaluate the predictive significance of a structural model (SM) in order to demonstrate its applicability in decision-making processes. Hence, the coefficient of determination (R2) is utilized to assess the predictive validity of the model (Field, 2005). In order for the model to possess utility as a predictor, it is imperative that the coefficient of determination (R2) surpasses zero.

The empirical inquiry tests the structural model's explanatory power and the statistical significance and influence of each hypothesized relationship. Fig. (2) shows that hypotheses H1.2, H1.3, H1.6, H1.7, H2.1, H2.2, H2.3, H3, H4, and H5 were supported, whereas H1.1, H1.4, and H1.5 were not. The model also explained 82.5% of behavioral intention, 79.3% of perceived risk, and 75.5% of mobile money use and FI. The proven hypotheses show that numerous precedents positively affect behavioral intention to use mobile money services, as shown in Table 5. Results show that effort anticipation $\beta = 0.127$; $p < 0.019$, social influence $\beta = 0.156$; $p < 0.028$, habit $\beta = 0.23$; $p < 0.025$, and enabling settings $\beta = 0.295$; $p < 0.000$ significantly impact mobile money service intention. The study found no significant positive influence on behavioral intention from performance expectation $\beta = 0.028$; $p < 0.650$, hedonic incentive $\beta = 0.077$; $p < 0.340$, or price $\beta = 0.093$, $p < 0.061$. In addition, the findings indicate that there is a statistically significant positive relationship between service charge $\beta = 0.186$; $p < 0.000$, agent trust $\beta = 0.367$; $p < 0.000$, and service trust $\beta = 0.389$; $p < 0.000$ and perceived risk.

Finally, the analysis found a substantial correlation between behavior intention $\beta = 0.423$; $p < 0.001$ and priced risk $\beta = 0.508$; $p < 0.000$. Using mobile money has a significant positive influence on financial inclusion $\beta = 0.869$; $p < 0.000$. Table 5 shows the structured result.

Table 4 the coefficient of determination.

	R-square	R-square adjusted
Behavioral Intention	0.825	0.822
Financial Inclusion	0.755	0.754

Mobile Money	0.793	0.792
Perceived Risk	0.800	0.799

If the value of the coefficient of determination (R2) is more than zero, it means that the rule of thumb was not broken and that the aforementioned structural model of mobile payment uptake and utilization is relevant in explaining financial inclusion in Egypt.

6. DISCUSSION

This research examined financial inclusion achievement by examining the precedent of using mobile payment. The lack of consistency among prior studies on mobile payment precedent motivated this investigation. Given the consensus that mobile payment might alter FI, in developing countries, it is crucial to understand the precedents that drive mobile payment utilization. The theory of prospect and (UTAUT2) may be beneficial.

This study found no significant effect of performance expectation on behavioral intention to embrace mobile money services (H1.1), contrary to Venkatesh et al., (2012), Oliveira et al., (2016), and Chopdar (2018). Similar to Chopdar et al. (2018), this investigation found varied results. Our results also show that hedonic incentives have no effect on mobile payment intention (H1.4). The results of this study differ from H1.5 on price importance (Chopdar et al., 2018). This study supports Liebana-Cabanillas et al. (2019) and Macedo, (2017)'s conclusion that effort expectations positively affect mobile money service utilization (H1.2), which means that the ease of transactions will boost mobile payment utilization.

Our findings support Macedo, (2017)'s claim that social impact affects the intention to utilize mobile payment (H1.3). Significant others may impact people's mobile payment intention views. Habit significantly affects mobile payment intention (H1.6), supporting Baudier et al., (2019) and Chopdar et al., (2018). The findings of Venkatesh et al., (2012) confirm their hypothesis that mobile payment utilization increases with user base. The findings also support Macedo, (2017), which found that facilitating conditions strongly impact the intention to utilize mobile payment (H1.7).

The data imply that service charge (H2.1), agent (H2.2), and service trust (H2.3) affect mobile money risk perception. This conclusion agrees with Osei-Assibey, (2015). This study supports hypotheses H3 and H4 that behavioral intention, perceived risk, and payment use are positively correlated. The results of this study match Venkatesh et al., (2012). This result offers empirical data that supports the generally known concept that individuals are more inclined to embrace mobile money technology when they hold positive opinions towards the technology and are willing to assume the perceived risks connected with its use.

This study found a positive correlation between mobile payment use and FI (H5). This matches Okello Candiya Bongomin and Ntayi's 2020a, 2020b research. Thus, the anticipation of effort, social influence, habit, enabling condi-

Table 5. Hypotheses testing results.

Hypotheses Testing	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T statistics ((O/STDEV))	P values	Decision
Agent Trust -> Perceived Risk	0.367	0.363	0.087	4.247	0.000	accept
Behavioral Intention -> Mobile Money	0.423	0.423	0.070	6.044	0.000	accept
Effort Expectancy -> Behavioral Intention	0.127	0.121	0.054	2.343	0.019	accept
Facilitating Conditions -> Behavioral Intention	0.295	0.299	0.080	3.684	0.000	accept
Habit -> Behavioral Intention	0.230	0.237	0.103	2.244	0.025	accept
Hedonic Motivation -> Behavioral Intention	0.077	0.080	0.081	0.955	0.340	reject
Mobile Money -> Financial Inclusion	0.869	0.869	0.028	31.141	0.000	accept
Perceived Risk -> Mobile Money	0.508	0.509	0.071	7.126	0.000	accept
Performance Expectancy -> Behavioral Intention	0.028	0.028	0.062	0.454	0.650	reject
Price Value -> Behavioral Intention	0.093	0.089	0.050	1.871	0.061	reject
Service Charges -> Perceived Risk	0.186	0.188	0.053	3.510	0.000	accept
Service Trust -> Perceived Risk	0.389	0.392	0.079	4.948	0.000	accept
Social Influence -> Behavioral Intention	0.156	0.151	0.071	2.191	0.028	accept

tions, behavioral intention, service costs, trust in agents and services, and perceived threat impact mobile payment utilization. Contrary to original predictions, performance expectancies, price, and hedonic incentives have no effect on mobile payment utilization.

7. IMPLICATION

Theoretical Implications

This study employs a multi-theory approach by integrating Prospect theory and the UTAUT 2 to examine the precedents influencing the adoption of mobile payment. The integration of the theories proposed by Macedo, (2017) and Venkatesh et al., (2012) enables a comprehensive examination of the relationship between individual intention, perceived risk, and real use behavior. It is important to acknowledge the significant disparity that exists between intention and actual uptake in order to get a thorough understanding of these constructs. Moreover, although the UTAUT2 has been extensively employed in technology utilization studies (Baudier et al., 2019), these investigations have mostly concentrated on the factors that promote utilization while neglecting to sufficiently consider the potential risks or obstacles. The integration of both theories posits that precedents to technology utilization are influenced by individual intention and risk perceived.

Moreover, this research contributes an important perspective to the prevailing position in the scholarly discourse on the use of technology. The research revealed that the use and acceptance of mobile payment have a significant influence on the enhancement of FI.

Practical and Policy Implications

Based on the findings of the study, it has been shown that precedents such as effort anticipation, social influence, ena-

bling conditions, and habit, have a significant role in influencing individual intention to uptake and utilize mobile payment. Based on this understanding, service providers have the opportunity to prioritize and adapt their mobile payment services in order to enhance acceptability and use. Additionally, the present study has discovered that individuals' trust in mobile money agents and services is impacted by their perception of risk. The statistics indicate a positive correlation between trust concerns related to agents and service providers, and the decisions made by users to use mobile payment. Mobile payment is increasingly being adopted in practice as a viable solution for promoting FI (Asongu and Nwachukwu, 2016). Its notable successes have contributed to its growing popularity as an innovative tool. Nevertheless, it is imperative to implement favorable policy decisions in order to maintain and enhance the benefits derived from the utilization of mobile payment.

Given the importance of technology adoption in eliminating poverty among marginalized nations (Rahman et al., 2017), national and local governments can use mobile payment services to bolster developmental and economic endeavors in economically depressed regions where traditional banking services are either unavailable or inconvenient to access. To promote much-needed FI and economic activity in rural and impoverished areas, mobile payment technology companies should be rewarded to expand their services there. As part of their corporate social responsibility, telecom corporations may increase their coverage to rural areas; governments may support social innovation projects that increase mobile money use.

The key conclusions of this study call for actions that would broaden access to financial products and services. For everyday purchases, for instance, a policy may promote the utilization of mobile payment. Increasing the availability of mobile payment across nations is the aim of such initiatives.

8. CONCLUSION, RESEARCH LIMITATIONS, AND SUGGESTED FUTURE RESEARCH

Despite its limitations, this study illuminates how tech affects society, which can only aid mobile money research, development, and implementation. Egypt, an economically and socially growing nation, hosted the initial research so Societal differences may limit generalizability to industrialized nations (Senyo et al., 2016). Future studies might explore variables boosting mobile payment adoption in underdeveloped and developed nations, with the goal of broadening applicability of findings. The survey also solely included mobile payment users but understanding intermediaries like agents' perspectives would be beneficial. Therefore, studies may examine intermediaries' perspectives. Additionally, this study only examined how specific criteria influenced mobile money utilization. Understanding the variables that affect the success or failure of mobile payment systems will be a great contribution to the fintech research industry.

The focus of the presented research was to evaluate previous attempts to discuss precedents to mobile payment by applying two theoretical models: (UTAUT2) and the theory of prospect. These theories were used to build a research paradigm for investigation. The research method used to probe the major research question about pinpointing the precedents of people's utilization of mobile payment and its effects on broadening FI was thoroughly analyzed.

The proposed model predicts that behavioral intention and perceived risk, have explained mobile payment usage. as this endeavor intends to apply UTAUT2 and Prospect theories to fintech and mobile payment research. The objective is to elucidate the influence of these theories on the promotion of FI. The study confirmed that social influence, effort expectation, habit, and enabling conditions strongly predict the intention to use mobile payment.

Significantly, the research results show that the perception of risk has an impact on service charges, as well as the level of trust in the service itself and the agents facilitating it. The results of the study suggest that there is a positive relationship between behavioral intention and perceived risk with the uptake and utilization of mobile payment. This relationship has significant implications for promoting FI. Moreover, the results deviated from other studies by suggesting that factors such as performance anticipation, price, and hedonic incentive had no impact on both the desire to use and the real utilization of mobile payment. The main results of the study have provided valuable insights into the precedents of mobile payment utilization and achieving FI.

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