The Impact of Perceived Risks on Using Digital Finance Services in Egypt: An Empirical Study

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Abstract: This paper aims to explore the impact of perceived risks on using digital finance services in Egypt. The sample of 384 was distributed among the respondents, data were collected by a questionnaire, where a usable sample of 314 was retained for the analysis, and the response rate was 81.77%. the data was analyzed by structural equation modeling (SEM) using AMOS V.25.

The results revealed that perceived risk had a negative and significant impact on using digital finance services, that is when the perceived risk from the customer increase, the using digital finance services will be decreased. Hence, the researcher recommends the necessity to build trust, because customer prefers to use digital finance services with a high level of trust, since the use of these services is risky behavior, so he tends to use these services in which they are expected to be successful handling of risks.

Keywords

Perceived Risks, Digital Finance Services, User of Digital Finance Services, Egypt

1. INTRODUCTION

Financial technology has prospered as one of the world's innovative industries, with its high capacity to use advanced technical tools in the provision of digital finance services. These innovative developments have led to the emergence of banking technology applications that help expand banking services and spread them in a way that affects the national economy. From this point of view the Central Bank of Egypt launched in March 2019 a strategy to transform Egypt into a regional center for the financial technology industry (Egyptian Central Bank, 2021). Banks with innovative activities have a greater chance of survival and continuity in a way that improves sustainable performance.

The emergence of digital services has also gradually changed consumer behavior, noting that digital services not only provide a range of diverse products and services but also allow rapid price comparisons and rapid access to product or service information. Despite the rapid development of electronic services in recent years, they are still seen as unsafe due to risks, and the concept of risk perception is essential for studying Customer choice behavior.

(Chu and Li , 2008)

E-banking has become part of our quotidian lives due to the remarkable development in the technology industry. Most customers prefer electronic services for their time-saving advantages. In general, electronic services are oppressed with a range of risks that pose a barrier to customers and service providers intending to conduct financial transactions using technology. (Bauer , 1967) , (Nangin et al. , 2020)

The current research aims to examine a variety of perceived risks as factors that may affect the customer's use of digital finance services representing an obstacle to the use of these services wasting the advantage for which they were created in terms of accuracy, speed and effort. The use of high-confidence and risk-free e-banking is the perfect solution for the adoption and adoption of digital finance services by customers. (Johnson and Auh,1998). It is one of the important steps towards digitization pursued by the new Egyptian Republic targeting Sustainable Development 2030. Egypt is working to achieve digital transformation and a strong competitive and diverse knowledge-based economy encouraging and diffusing the culture of entrepreneurship and the digital finance services to all the segments of society.

According to data the Egyptian Banking Institute data, digital finance services in Egypt contribute to the financial sector for about 2% of the GDP. (Egyptian Banking Institute, 2021)

The research is therefore interested in identifying the perceived risks affecting customers to use digital finance services in the Egyptian environment. Hence, developers of digital finance services can explore and try to address perceived risks that negatively affect those services.

1.1 Research problem: The research problem is the existence of risks related to the use of digital finance services despite its rapid development and the advantages they provide. These risks are an obstacle to the use of these services. Solutions are needed to be found to prevent the customer losing confidence in those services and therefore ceasing using digital finance services. The problem of research can be formulated in the following key question: 'Is there an impact of perceived risks the use of digital finance services?'

1.2 The importance of research

The scientific importance: The research identifies the use of digital finance services as one of the modern topics that depend on innovations in technology. The future researches should

study the mutual relationships between, perceived risks, behavior and the intention of customers to accept technological services in general and digital finance services in particular. (Kesharwani and Singh, 2012)

The applied importance: to identify which type of perceived risks (security risks, performance risks, social risks, time risks, financial risks and psychological risks) has more influential effect on the use of digital finance services depending on the demographic factors of customers in the Egyptian banking sector. This will help developers in the field of financial technology and inform them about risks that must be avoided in order to ensure that the perceived risks associated with the development and control of digital finance services are reduced.

1.3 Research objectives
- Assessing customer awareness of the types of risks related to the use of digital finance services.
- Determining whether there is an impact of the types of perceived risks on the use of digital finance services, the type and direction of this effect.

2. LITERATURE REVIEW
2.1 Perceived risks
Perceived risks were first perceived by Bauer as the uncertainty and its negative consequences. Then Risks is defined by the as the expected loss which is determined personally. (Bauer, 1960), (Koç et al., 2019). The dimensions of perceived risk can be classified into six dimensions as outlined in Table (1).

Table (1): Different types of customers perceived risks

Dimension	definition
Security risk	Potential losses involving the transfer of sensitive data through electronic services that violate technological data protection (Hanafizadeh and Khedmatgozar, 2012).
Performance risk	Recognizing that the product or service may not work as required or expected, and therefore the risks associated with inadequate or unsatisfactory performance (Brosdahl and Almousa, 2013).
Social risk	Potential losses in their social status as a result of the use of the digital finance services, because they did not receive sufficient attention from customer service management through the actual interview (Featherman and Pavlou, 2003).
Time risk	Potential losses of comfort, time and effort due to wasting time searching, purchasing, setting up and switching to how to use and learn digital finance services (Featherman and Pavlou, 2003).
Financial risk	Potential financial losses due to subscription to a poorly performed electronic service or potential online fraud (Featherman and Pavlou, 2003).
Psychological risk	Potential loss of self-esteem or peace of mind due to anxiety, frustration or stress as a result of the use of the digital finance service (Featherman and Pavlou, 2003).

2.2 The use of digital finance services

Digital finance services can be defined as emerging business models driven by big data, block chains, cloud computing, artificial intelligence and other modern technologies in financial markets. The main advantages of using digital finance services are the ability to use them via mobile phones, are rapidly spread among hundreds of millions of customers, can be used for low-value or high-value financial transactions, as well as their low cost of use. (D'Silva et al., 2019).

2.3 Perceived risks and the use of electronic banking

There is a negative impact of the perceived risks on the orientation of customer behavior to adopt internet-banking services; banking institutions must therefore pay attention to the factors of perceived risks in order to retain existing customers as well as attract new customers; Perceived risks are barriers to the internet banking services adoption. Banks should create a website with features to facilitate users' assessment of online banking, thereby reducing risk perception and making it easier to use new financial technology. The risks that customers are facing when using the internet negatively affect their intention to the online buying; time and psychological risks are the most perceived risk for consumers when considering an online purchase. Many types of consumers perceived risks should therefore be examined if financial institutions seek the widespread of financial technology. (Kesharwani and Singh Bisht, 2012; Sudibyo et al., 2020)

Risk can be perceived in terms of financial, performance, physical, time, social or psychological aspects. The perceived social and physical risks reinforce the need for consumers to seek information about new products but the perceived financial risks have a negative impact on the new product adoption (Hirunyawipada and Paswan, 2006).

Financial institutions providing online services need to adopt measures to reduce the perceived risk to users to strengthen trust in products and services, thereby increasing users' willingness to employ the services. (Yang et al., 2015). The perceived risk indirectly impacts intentions to use an online application under security threats. (Hu et al., 2019)

Perceived risk is a form of lack of trust, and most scholars believe that perceived risk is the main factor that negatively affects adoption of technology. Consumers use a new technology or service under the influence of government support, user innovativeness, and brand image. Then, they weigh the benefits and potential risks, which ultimately affect their adoption attitude. (Lu et al., 2005)

Customer's acceptance willingness will increase if his/her beliefs about the features of internet banking services are appropriately managed. Thus, policy attention must be focused on the cultivation of customers' beliefs. Compatibility was found to play the central role since it directly affect customers' intention, while at the same time raises customers' perceptions about the benefits of the new technology and lowers their fears about the risks incurred by it. With regard to the security and privacy risks of online banking, young customers find online banking safer and more reliable than older potential customers. Banking institutions should therefore try to better understand their customers and find the right target markets, so young male customers are a promising market that banks can easily penetrate, as this public seems to appreciate the advantages of new technology more than its risks. (Giovanis et al., 2012).

A number of studies have also succeeded in demonstrating the negative impact of perceived risks on the use of different sources of information. The financial, legal, security and operational risks can greatly predict the client's perception of the risks. (Al Gharbawi, 2017)

Legal risks are the most important determinant of perceived risks, as users of Islamic financial technology are primarily interested in legal risks when conducting financial transactions. In addition, clients are responsible for submitting an anti-money laundering issues and declaring the purpose of the transaction. This may increase the level of risks perceived in customers' perception of adopting financial technology because of legal frameworks. (Ali et al., 2021)

It is important to explore risk factors for individuals who want to use financial technology. Analysis and classification of financial technology risks can increase the effectiveness of the development of digital finance services. A lack of interest in risk study may result in consumers not adopting the use of financial technology. (Shaheen and Al-Anzi, 2020)

Service quality has a direct influence on perceived risk and trust. Moreover, service quality has an indirect influence towards behavioral intentions to use internet banking through perceived risk and trust as mediators. In addition, perceived risk has a direct influence on behavioral intentions to use internet banking. (Namahoot and Laohavichien, 2018; Thakur and Srivastava, 2014)

Perceived risks limit the use of credit cards and have a direct and indirect impact on the orientation of customer behavior through performance expectation, social impact, pleasure drive and price value. Moreover, trust has been found to modify the relationship between perceived risks and customer behavior. This indicates that the study of perceived risks is as important as focusing on the quality of financial service provided for the development of banking services.(Trinh et al. ,2020; Kaur and Aura, 2020)

 In addition, individuals have serious concerns about crypto currencies, as Bit coin cannot attract a wider audience due to its volatile value. This, in turn, has several negative effects on the adoption of the use of new crypto-currencies and then Risk perception can negatively affect users' participation in Bit-coin transactions. (abramova and Böhme, 2016)

Perceived risk of using the digital financial services will reduce consumers' usage behavior of such services. (Rao et al., 2007). There are a range of features that affect the customer's experience of digital banking services such as database innovation, perceived usability, and perceived risks. (Mbama et al., 2018).

Finally, the perceived risks negatively affect consumers' intention to finance, so the features of the banking services provided and social projects must be explored as well as customers' awareness of those risks. (Aisaiti et al., 2019).

Through a review of previous studies, the indirect impact of risk perception on financial technology was examined. The current research addresses the direct impact of perceived risks on the use of electronic banking. In addition, previous studies reached different findings due to the different demographic factors for customers, so this paper seeks to study the impact of the perceived risks on the electronic services in the Egyptian environment.

Hypothesis: There is a significant impact of perceived risks on the use of digital finance services.

2.4 Research gap

The vast majority of previous research has confirmed the impact of perceived risks on electronic services, but there are some types of risks that have not been proven to affect digital finance services, and therefore there is a need to study the effect of many types of perceived risks on digital finance services in the Egyptian environment.

3. METHODOLOGY

3.1 Research variables and scale design

In measuring the research variables, the researcher relied on a set of ready-made scales used in previous research, whose validity and reliability have been proven, and each scale contains a set of constituent phrases. The research consists of two main variables as follows, perceived risks as an independent variable and divided into 6 sub-dimensions, which are perceived risks (security, performance, social, temporal, financial, and psychological) perceived by clients, and it was prepared by (Trinh et al., 2020). These dimensions consisted of 25 statements that reflect the clients' level of risk awareness. In addition to the use of electronic banking services as a dependent variable and it consists of 3 statements and has been prepared by (Aisaiti et al., 2019), and the relative weight of each statement was measured using the five-point Likert scale (1 = Strongly Disagree) while (5 = Strongly agree).

3.2 Research sample and data collection

The population of this study consists of all customers of Fintech and mobile banking services in Egypt. Due to the difficulty of using the comprehensive enumeration method due to the large size of the community, as well as the difficulty of enumerating all its vocabulary, and also the inability to provide a sampling framework for such a community; Therefore, the researchers relied on a soft sample for research, as this community is one of the large and open societies, and the sample size was determined from 384 individual. Details of the samp[le are shown in Table (2).

Table 2. Sample Characteristics.

Demographic	Variable and Category	Frequency	Percentage
Gender	Male	148	47.03
	Female	166	52.97
Age	18–25	42	13.44
	26–35	176	56.07
	36–45	49	15.76
	46–55	42	13.44
	>=56	4	1.29
Employ status	Student	9	2.84
	Employee	38	12.14
	Academic Staff	52	16.54
	Privet Scoters	162	51.68
	Business management personnel	17	5.43
	Other	36	11.37
Education	Diploma	93	29.46
	Bachelor	180	57.36
	Master or more	41	13.18

Income (LE)	Less than 2000	41	13.18
	2000–6000	171	54.26
	6001–10000	61	19.38
	More than 10000	41	13.18
Fintech service usage	Never	6	2.07
	Occasionally	54	17.31
	Frequently in everyday	254	80.62

Table 3. Reliability and Validity Measures.

Constructs	Item	Factor Loading	AVE	CR
Security Risk	SeR1	0.75	0.60	0.90
	SeR2	0.79		
	SeR3	0.77		
	SeR4	0.83		
	SeR5	0.81		
	SeR6	0.68		
Performance Risk	PeR7	0.70	0.63	0.90
	PeR8	0.81		
	PeR9	0.82		
	PeR10	0.84		
	PeR11	0.80		
Social Risk	SoR12	0.83	0.76	0.91
	SoR13	0.92		
	SoR14	0.87		
Time Risk	TiR15	0.72	0.63	0.87
	TiR16	0.85		
	TiR17	0.85		
	TiR18	0.75		
Finance Risk	FiR19	0.80	0.70	0.90
	FiR20	0.89		
	FiR21	0.87		
	FiR22	0.79		
Psychological Risks	PsR23	0.76	0.68	0.86
	PsR24	0.85		
	PsR25	0.86		
Using Digital Finance Services	UsDf26	0.81	0.79	0.92
	UsDf27	0.82		
	UsDf28	0.87		

Validity means the degree to which the model fits the survey data, including convergent validity and discriminant validity. The convergent validity reflects the correlation degree of multiple indicators for a variable, which is measured by the average variance extracted (AVE) (Ruvio et al., 2008) of the latent variable, the CR (Chin, 1998), and the loading of corresponding measurable variables (Bagozzi and Phillips, 1991). AVE values of the sample are required to be larger than 0.5, and the loadings of measurable variable to be larger than 0.7. Then, as shown in Table 4, all the evidence below supports the convergent validity of all

constructs. Discriminant validity refers to there being no correlation between each variable; that is to say, the measures of each variable can be distinguished from others. It is supported if the AVE is greater than the square of inter-scale correlation in this model. Then, as shown in Table 4, the AVE was greater.

Table 4. Discriminant validity of constructs.

Construct	Security Risk	Performance Risk	Social Risk	Time Risk	Finance Risk	Psychological Risks
Security Risk	(0.77)					
Performance Risk	0.70	(0.79)				
Social Risk	0.57	0.58	(0.87)			
Time Risk	0.55	0.74	0.48	(0.79)		
Finance Risk	0.69	0.61	0.52	0.53	(0.84)	
Psychological Risks	0.62	058	0.50	0.50	0.70	(0.82)

4.1 Structural Equation Model: Hypotheses Testing

Structural Equation Modeling is a statistical method to explore variable relations by using the covariance matrix of the variables. In addition, it is an important tool for multivariate data analysis. After the validity and reliability analysis, this section conducted an empirical study of the adoption model of Fintech services based on the analysis of the sample data and used the sample data and structural equation model to test the hypothesis. Standardized path coefficient (β) and t value were obtained by Amos v.25 using SEM model, which were used to test the hypotheses proposed in this paper. In general, if $t > 1.96$, the coefficient test is significant at the $p < 0.05$ confidence level. If $t > 2.58$, the coefficient test is significant at the $p < 0.01$ confidence level. If $t > 3.1$, the coefficient test is significant at the $p < 0.001$ confidence level. The test results of the hypotheses are shown in Table 5below.

Table 5. Hypotheses results

Hypotheses	Path	B	S.E	C.R	P-Value	Result
H1	SeR→UsD	-0.589	0.062	3.799	0.000	Significant
H2	PeR→UsD	-0.546	0.073	0.664	0.000	Significant
H3	SoR→UsD	-0.950	0.079	4.010	0.000	Significant
H4	TiR→UsD	-0.452	0.07	3.008	0.000	Significant
H5	FiR→UsD	-0.507	0.06	1.631	0.000	Significant
H6	PsR→UsD	-0.471	0.072	1.434	0.000	Significant

The results showed that the most important impact is for social risks (β=-0.950; p<0.001), impact negative significance of social risk on using digital finance services, Thus, the H3 is supported. However, H1 has been supported for the impact negative significance of security risk on using digital finance services (β=-0.589; p<0.001). In addition to, H2 has been supported for the impact negative significance of performance risk on using digital finance services (β=-0.546; p<0.001), H5 has been supported for the impact negative significance of finance risk on using digital finance services (β=-0.507; p<0.001). Moreover, H6 has been supported for the impact negative significance of psychological risk on using digital finance services (β=-0.471; p<0.001), and H4 has been supported for the impact negative significance of time risk on using digital finance services (β=-0.452; p<0.001).

4. CONCLUSIONS AND RECOMMENDATIONS

Perceived risks are a multidimensional variable and have a negative significant effect on the use of digital finance services. Therefore, companies in general and marketing management in particular should pay careful attention to social risks, security risks, performance risks, the time risks, financial and psychological risks that customers are aware of.

Based on the findings, some recommendations can be formulated and implemented in order to increase confidence in the use and adoption of digital finance services by customers and reduce perceived risks as follows:

- Create an identifying content as a guide for how to use digital finance services and making sure the customer is ready to use it before the service is in use.
- Establish a legal framework to protect the rights of the customer against many types of risks during the use of digital finance services.
- Establish a mechanism to evaluate digital finance services after their use.
- Choose the best, finest and fastest devices, network design and infrastructure for digital finance services networks.
- Increase security tools in digital finance services to attract customers and increase their confidence.
- Relying on advanced artificial intelligence services to increase the effectiveness of digital finance services.
- Improving confidence in e-banking services.
- Build a strong brand that customers trust and have a good reputation for alleviating customer concerns about the performance of services.
- Divide customers by the type of perceived risks; identify their high risk levels and work to resolve them.

This paper discussed the indirect impact of perceived risks on the use of digital finance services, hence, we suugest that future research needs to further understand that relationship, as future research should focus on comparing physical goods with intangible services in terms of perceived risk types, as well as exploring factors influencing the relationship between confidence expectations and the use of digital finance services that will increase customer dependence on those services.

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