The Influence of FinTech on Customer Retention in Algeria
أثر التكنولوجيا المالية على الاحتفاظ بالعملاء في البنوك التقليدية

PhD/s. Boubidi Rania [1]

[1]University of Jijel, LEODD Laboratory (Algeria), rania.boubidi@univ-jijel.dz

Abstract:

The purpose of this paper is to investigate FinTech's applications (payments, advisory services, financing, compliance, and crowdfunding) that influence customer retention in conventional banks in Algeria. In order to collect data, a snowball sampling technique was utilized from 119 respondents online. Data was processed using the Statistical Package program for Social Sciences (SPSS21).

The findings revealed that payments, advisory services, compliance, and crowdfunding were all positively associated with customer retention in Algerian conventional banks. In contrast, financing has no influence on customer retention in these banks. The conclusion of this study underlines the importance of developing a variety of FinTech applications by conventional banks in order to keep their customers for a longer period of time.

Keywords: FinTech, Customer Retention, Conventional Banks, Algeria.

JEL Classification Codes: G20, M310, G210, P480.

ملخص:

الغرض من هذه الورقة هو التحقيق في تطبيقات *FinTech* (المدفوعات ، والخدمات الاستشارية ، والتمويل ، والامتثال ، والتمويل الجماعي) التي تؤثر على الاحتفاظ بالعملاء في البنوك التقليدية في الجزائر. من أجل جمع البيانات ، تم استخدام تقنية كرة الثلج لأخذ العينات من 119 مشاركًا عبر الإنترنت. تمت معالجة البيانات باستخدام برنامج الحزمة الإحصائية للعلوم الاجتماعية (*SPSS21*).

كشفت النتائج أن المدفوعات والخدمات الاستشارية والامتثال والتمويل الجماعي كلها مرتبطة بشكل إيجابي بالاحتفاظ بالعملاء في البنوك التقليدية الجزائرية. في المقابل ، ليس للتمويل أي تأثير على الاحتفاظ بالعملاء في هذه البنوك. تؤكد خاتمة هذه الدراسة على أهمية تطوير مجموعة متنوعة من تطبيقات التكنولوجيا المالية من قبل البنوك التقليدية من أجل الحفاظ على عملائها لفترة أطول من الوقت.

كلمات مفتاحية: التكنولوجيا المالية، الاحتفاظ بالعملاء، البنوك التقليدية، الجزائر.

تصنيفات JEL: G20 ، M310 ، G210 ، P480.

Corresponding author: Boubidi Rania, **e-mail:** rania.boubidi@univ-jijel.dz

INTRODUCTION:

FinTech, which is an abbreviation for "financial technology", refers to the integration of technology in the provision of financial services. The online version of the Oxford dictionary defined FinTech as computer software and other technologies used to help or facilitate financial and banking services (Alam & Ali, 2021). FinTech is a rapidly expanding business sector. According to KPMG's Fintech Pulse report, 2022 has been a phenomenal year for the FinTech market, with a record number of deals in every important region (KPMG, 2022). Emerging FinTech companies are those that are creating products that make use of increasingly advanced technology such as Blockchain, the Internet of Things (IoT), Machine Learning, Artificial Intelligence (AI), Cloud Computing, and Big Data. The utilization of this advanced technology is one of the key distinctions between FinTech and the majority of traditional financial institutions (Mohamed & Ali, 2019). Today's organizations must consider a number of factors to be successful, including customer retention. It is defined as the marketing goal of keeping customers from going to a rival (Mukwada & Molapo, 2011).

E-payment, which was implemented in Algeria, a few years ago, is growing rapidly. According to the delegated minister, "the number of online transactions increased by 500% between 2021 and 2022" (le soir d'Algérie, 2022). In the alternative lending segment, the average transaction value per user is expected to be $14.48k USD in 2022 (Statista, 2022). The number of users in the segment of digital payments is expected to reach 17.34 million through 2027 (Statista, 2022).

The problematic: According to Statista, the use of FinTech in Algeria is growing. The goal of this research is to determine how FinTech affects the retention of customers of conventional banks in Algeria. Hence, it becomes interesting to study the following research question: **Is there an influence of financial technology on customer retention in conventional banks in Algeria?**

The Hypothesis:

The main hypothesis: There is a statistically significant influence of FinTech on customer retention in conventional banks in Algeria at p-value = 0.05.

Sub-hypotheses: The main hypothesis generates the following sub-hypotheses:

- There is a statistically significant influence of payments on customer retention in conventional banks in Algeria at p-value = 0.05.
- There is a statistically significant influence of advisory services on customer retention in conventional banks in Algeria at p-value=0.05.
- There is a statistically significant influence of financing on customer retention in conventional banks in Algeria at p-value=0.05.
- There is a statistically significant influence of compliance on customer retention in conventional banks in Algeria at p-value=0.05.
- There is a statistically significant influence of crowdfunding on customer retention in conventional banks in Algeria at p-value=0.05.

Objectives of the Study: The following objectives are the focus of the current study:

- To determine the influence of FinTech on Customer Retention in Algerian conventional banks. Precisely, the effect of the five dimensions of FinTech on Customer Retention.
- To supplementing the prior two investigations (Baber H. , 2019) and (Baber H. , 2020) because the case of our study is conventional banks and the case of the previous studies of Baber is Islamic banks.
- To determine which FinTech applications positively influence client retention for conventional banks to focus on and which FinTech applications do not influence customer retention for conventional banks to ignore..

Previous study:

FinTech, Crowdfunding and Customer Retention in Islamic Banks: This study aimed to identify the influence of FinTech applications and crowdfunding on customer retention in Islamic banks of Malaysia and the United Arab Emirates. Through strata sampling, the researcher collected the necessary information from 535 customers of selected banks from both countries. The study found that FinTech financing has no impact on customer retention. However, other variables such as payments, advisory services, compliance, and crowdfunding had an impact on client retention in these two nations' Islamic banks (Baber H. , FinTech, Crowdfunding and Customer Retention in Islamic Banks, 2019).

Impact of FinTech on customer retention in Islamic banks of Malaysia: The purpose of this study was to determine the impact of FinTech on customer retention in Islamic banks of Malaysia. Through strata sampling, the researcher collected the necessary information from 325 customers of selected banks in Malaysia. The study found that FinTech payments, advice, and compliance services have an impact on customer retention, while financial services, which are considered a key aspect of traditional banking, have no impact on customer retention (Baber H. , 2020).

Research model: In order to solve the study issue, we created this research framework.

Fig (1): The proposed model
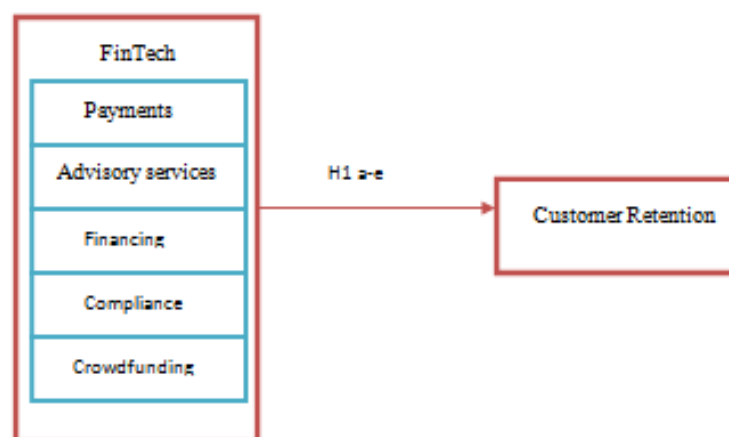
Source: Personal effort.

1-Literature review:

1-1 FinTech

McKinsey & Company described FinTech as start-ups and other organizations that utilize technology to perform the fundamental operations obtained from financial services,

influencing how consumers retain, save, loan, transfer, invest, secure, and spend money (Ahmad & Habib, 2021). In addition, according to the FSB, it is financial services' advancement of technology that might lead to future business models, apps, operations, or services, that could have a significant impact on financial institutions as well as the provision of financial services (FSB, 2022). Mills characterized FinTech in his book as a broad category that covers creativity in banking, insurance, and financial services industries, as well as emerging areas such as cryptocurrency and blockchain (Mills, 2018). Leong & Sung, define it as any creative ideas that lead in new company models, new businesses, and or strong financial service procedures by operations via recommending technology solutions in accordance with different business circumstances (Leong & Sung, 2018). It is evident from the above definitions that the term "FinTech" reflects the union of the terms "financial" and "technology" in the sense of creating advanced technologies, means, and techniques and applying them to the financial aspect to support banking and financial transactions with the purpose of growing financial markets and institutions. As illustrated in Figure 1, it was only after 2014 that the industry took off and attracted the public's attention.

Fig (2): FinTech Trends

Source: (Googel Trends, 2022)**.**

1-2 Application of FinTech

Dorfleitner and Hornuf divide FinTech into four segments, namely financing, asset management, payments, and other FinTechs (Dorfleitner & Hornuf, 2019). Our research adopts five segments of FinTech applications, namely payments, advisory services, financing, compliance, and crowdfunding. This classification follows the previous studies (Baber H. , 2019) and (Leong & Sung, 2018).

1-2-1 Payments

It involves Fintech that proposes new methods of payment like P2P payment, mobile payment, e-wallets, and instant payment (Dorfleitner & Hornuf, 2019). Due to the relative simplicity of digital payment services compared to other products, fintechs specializing in payments may easily attract clients quickly and affordably (Mohan, 2020). According to two researches, payments significantly affect retaining customers in Islamic banks (Baber H. , 2019) and (Baber H. , 2020). A study showed that implementing payment solutions driven by FinTech leads to improved customer retention (Tripathy & Jain, 2020). Customer retention is achieved via big data based on payment transaction data, which is one of the key typologies of FinTech (Visconti, 2020).

1-2-2 Advisory services

It refers to the provision of suggestions to users based on a set of rules and criteria. Robo-advisor, as a sub-subject under advisory service, is now a growing topic in the

investment sector (Leong & Sung, 2018). Robo-advisors are a type of financial advisory technology that offers financial advice or investment management online using proprietary algorithms and numerical rules with almost no human intervention, such as Wahed Invest (Mohamed & Ali, 2019). According to previous research, advice service has a considerable effect on client retention in Islamic banks (Baber H. , 2019) and (Baber H. , 2020). Two studies indicated that robo-advisors are vital for attracting and retaining customers because they offer a unique customer experience at a minimal cost (Baporikar, 2021) and (Lee & Shin, 2018). Gomber and his research team highlight that Chatbots are necessary for retention (Gomber, Kauffman, Parker, & Weber, 2018).

1-2-3 Financing

FinTech offers a number of additional creative ways of financing operations, resulting in a reduction in credit shortages around the world (Golubic, 2019). The majority of these alternative ways do not follow conventional norms (Leong & Sung, 2018).

Peer-to-peer lending has emerged as the most viable alternative to the world's traditional banking finance system. P2P lending is a type of money lending service that connects lenders and borrowers via internet platforms (Anifa, Ramakrishnan, Joghee, & Kabiraj, 2022). It is also known as "social lending" (Manta, 2021). In his two investigations, Barber discovered that funding has no substantial impact on client retention in Islamic banks (Baber H. , 2019) and (Baber H. , 2020). A study indicated that a P2P system ensures digital consumer experiences in order to enhance customer retention (Pedone, 2016).

1-2-4 Compliance

It means conforming to a set of regulations, such as laws, policies, standards, or specifications. Many businesses now regard compliance as a critical business procedure. In this context, RegTech refers to the use of technologies to improve regulatory processes (Leong & Sung, 2018). It has the potential to help financial firms regulate risks and costs more efficiently while also opening the way for FinTech startups, advisory companies, and tech firms (Arner, Barberis, & Buckley, 2017). In his two researches, Barber found that compliance significantly affects client retention in Islamic banks (Baber H. , 2019) and (Baber H. , 2020). He also determined that Sharia compliance has a major effect on satisfaction of clients for Islamic banks that provide FinTech services (Baber H. , 2019).

1-2-5 Crowdfunding

Albastaki defined crowdfunding as an advanced method allowing organizations, projects, businesspersons, and start-ups to generate money for their causes from a large number of individual donations or investments (Albastaki, 2021). Manta described it as the use of capital from a group of people (through social media and niche websites) to support a business venture (Manta, 2021). A study shows a positive effect of Crowdfunding on client retention in Islamic banks (Baber H. , 2019). In addition, research perceived Crowdfunding as a customer retention strategy (Setälä, 2017).

1-3 The concept of customer retention

Customer retention is a fundamental objective of CRM (Nataraj, 2010). Customer retention refers to all activities performed by a company to ensure customer loyalty and reduce customer churn (Sabbeh, 2018). According to Ascarza et al., customer retention is the customer staying to interact with the company (Ascarza, et al., 2017). A 5% increase in customer retention results in a 25% to 75% increase in profits (Reichheld & Sasser, 1990).

Also, a company invests five times as much to recruit a new customer as it does to retain an existing one (Wills, 2009). Customers who are loyal to a company act as a "great marketing force," generating recommendations and spreading a favorable word of mouth (Bowen & Chen, 2001). Customers who stay with a company for an extended period of time are referred to as retained customers (Gengeswari, Padmashantini, & Sharmeela-Banu, 2013). Customer retention is a key indicator of a provider's ability to entice repeat purchases (Morgan & Hunt, 1994).

Previous studies show that client retention in Islamic banks is influenced by FinTech (Baber H. , 2019) and (Baber H. , 2020). A study emphasizes the importance of implementing FinTech technologies to enhance customer retention (Tripathy & Jain, 2020). Saba and his research team indicate that FinTech solutions have a direct positive impact on client loyalty (Saba, Kouser, & Chaudhry, 2019). In a recent study, authors illustrated that innovation in financial technology is a strategic decision taken by a firm to increase profitability and gain the loyalty of its customers (Babakhanian, Amin Mousavi, Soltani, & Vakilifar, 2022). A study found that improving customer retention is the top opportunity for the emergence of FinTech (Rahman, Ahmed, & Shakil, 2021).

2-Sample and data collection:

The target population consists of customers who have used FinTech at least once in banks in Algeria. The sampling method utilized in this study is non-probability sampling because there is no sampling frame from which the elements will be chosen. In particular, a snowball sampling technique is utilized.

The appropriate tool to achieve the objectives of this study is electronic questionnaire. To discover what clients believe about FinTech and their potential for interacting with the bank, a 31 items questionnaire was developed. Our research adopts five applications of FinTech, namely payments, advisory services, financing, compliance, and crowdfunding. This classification follows the previous studies (Baber H. , 2019) and (Leong & Sung, 2018). Additionally, three items in three dimensions for customer retention: revisit intentions, the chance of continuing with the bank for the next five years, and word-of-mouth. This measurement follows the previous study (Baber H. , 2019). The data was collected from 119 respondents online. The questionnaire was written in English, French and Arabic. It was divided into two parts. The first section asked questions about the respondents' demographics. Research questions to measure payments, advisory services, finance, compliance, crowdfunding, and retention were included in the second section. All questions are evaluated on the five-point Likert scale, where 1 indicating strongly disagree, 2 indicating disagree, 3 indicating neutral, 4 indicating agree, and 5 indicating strongly agree.

3- Analysis and results:

3-1 Demographic profile

The demographic profile of the responders is shown in Table (1). This table provides an overview of the 119 respondents. According to the profile, most of responders, 67%, were male, with the remaining 33% being female. Furthermore, 53% of respondents were single, while 47% of participants were married. According to the data, most of the respondents (48%) were between the ages of 31 and 40, followed by 20-30 (30%), 41-50 (15%), and 50 and over

(7%). The majority of respondents prefer to conduct banking transactions online rather than in person.

Table (1): Profile of responders

Demographic Items	Frequency	%
Gender		
Male	80	67.2
Female	39	32.8
Marital status		
Single	63	52.9
Married	56	47.1
Age		
20-30	36	30.3
31-40	57	47.9
41-50	18	15.1
50 and above	8	6.7
Use of internet		
Rarely	0	0
Sometimes	2	1.7
Often	46	38.7
Mostly	71	59.7

Source: Personal effort using SPSS.

3-2 Test of hypotheses

3-2-1 Reliability of Analysis

By calculating the Cronbach's alpha of the items that represented each FinTech and customer retention component, the reliability test was evaluated (see Table 2). The reliability of each construct of FinTech and customer retention is more than 0.6 which is considered high reliability and acceptable (Daud, Khidzir, Ismail, & Abdullah, 2018). As a result, the research's FinTech and customer retention data is trustworthy and appropriate for further research.

Table (2): Reliability Analysis

Dimensions	Items	Cronbach's alpha
Payments	6	0.679
Advisory services	4	0.920
Financing	3	0.851
Compliance	4	0.664
Crowdfunding	5	0.910
Customer retention	9	0.901
Combined scale	31	0.922

Source: Personal effort using SPSS.

A multiple linear regression analysis is conducted in order to test the research hypotheses. The predictors of regression are the means of each item on their scales. Furthermore, the mean of 9 items of customer retention is the dependent variable.

3-2-2 Screening Data for Regression

A set of preliminary assumptions must be approved before beginning a multiple regression analysis. As a result, we will first ensure that the data acquired is suitable for regression analysis.

3-2-2-1 Sample size

A reliable regression equation necessitates a sample size of fifteen respondents for each explanatory variable (predictor). In our case, there are five independent variables (predictors or explanatory variables), which necessitates a sample size of seventy-five respondents. A sample size of 119 respondents was used, which means that the sample size allows the use of regression analysis.

3-2-2-2 Normality

Normality is examined through the normality plot of regression standardized residuals. The figure above shows that the residuals are aligned diagonally. Thus, the distribution of residuals follows the normal distribution. So, the assumption of normality is accepted. Furthermore, all values of standaridized residuals are neither above +3, nor below -3, as shown in the histogram of regression standardized residuals. Thus, the normality condition is verified.

Fig (3): Normal P.P Plot
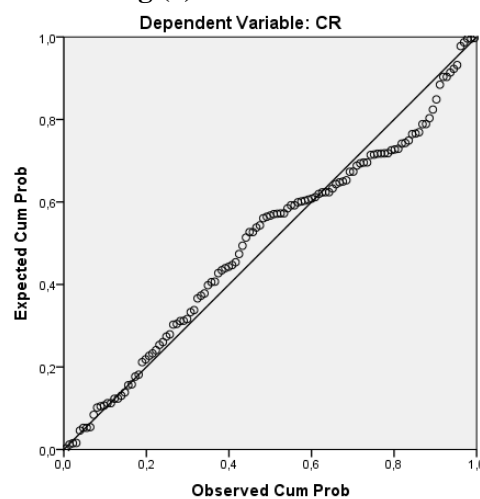
Source: Personal effort using SPSS.

Fig (4): Regression Standardized Residual's Histogram

Source: Personal effort using SPSS.

527
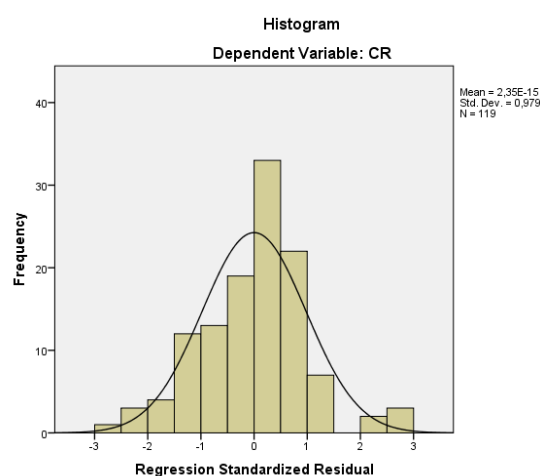
3-2-2-3 Multicollinearity

Multicollinearity refers to the high correlation among independent variables ($\geq .90$). The correlation between independent variables can be used to examine this condition.

According to the coefficient correlations in the table below, all the correlations between independent variables are less than 90%. As a result, we can conclude that multicollinearity does not pose any problem.

Table (3): Correlation matrix

		CR	Com	Pay	Ads	Fin	CF
Pearson Correlation	CR	1,000	,530	,388	,669	-,008	,622
	Com	,530	1,000	,347	,553	,132	,433
	Pay	,388	,347	1,000	,242	-,147	,216
	Ads	,669	,553	,242	1,000	,180	,752
	Fin	-,008	,132	-,147	,180	1,000	,198
	CF	,622	,433	,216	,752	,198	1,000

Source: Personal effort using SPSS.

Multicollinearity can also be examined through tolerance statistic. Table below indicates that tolerance values are highly above 0.1. Therefore multicollinearity does not pose a problem.

Table (4): Correlations Between independent variables

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	compliance	,639	1,564
	payment	,830	1,205
	advisory	,370	2,702
	financing	,909	1,100
	CF	,428	2,337

Source: Personal effort using SPSS.

3-2-2-4 Outliers

When the condition: Mahalanobis distance chi square (the number of independent variables; 0.001) is not valid, the outliers are present. According to the chi square test table, chi square (6, 0.001) = 22.46, which is greater than all Mahalanobis distance values in this model. Therefore, no outliers are detected.

3-2-2-5 Autocorrelation

The test of Durbin-Watson (DW) is used to determine the independence of residuals. Based on the model summary table below (table 5), Durbin-Watson value = 1.956 which is greater than the maximum critical value (DL 1.528/ DU 1.803). The alternative hypothesis H1 that stipulates the absence of autocorrelation is accepted and residuals are independent.

Table (5): Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	DW
1	,749[a]	,561	,542	,52323	1,956

a. Predictors: (Constant), CF, financing, payment, compliance, advisory

b. Dependent Variable: CR

Source: Personal effort using SPSS.

3-2-3 Model evaluation

According to the previous table (model summary table) and based on the Adjusted R square value, the model explains 54.2% of the variation of the dependent variable, which means, payments, advisory services, financing, compliance and crowdfunding explains 54.2 % of the variation in customer retention of Algeria conventional banks.

3-2-3-1 Model usefulness

Table (6): ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	39,541	5	7,908	28,886	,000[b]
1	Residual	30,936	113	,274		
	Total	70,477	118			

a. Dependent Variable: CR

b. Predictors: (Constant), CF, financing, payment, compliance, advisory

Source: Personal effort using SPSS.

This model is highly significant for alpha 5%, Fisher value is equal to 28.886 and greater than the critical value F (5, 113, 5%) = 2.29.

Fisher value is greater 12 times than the critical value which allows Algeria conventional Banks to base its decisions on this model.

3-2-3-2 Parametric evaluation

The model is statistically significant. Based on the analysis of the coefficient table below, payments, advisory services, compliance, and crowdfunding are the independent variables that can individually contribute to the variation of the dependent variable (customer retention). While financing does not contribute to the variation in customer retention.

Table (7): Parametric evaluation

Model		Unstandardized Coef		Standardized Coef	t	Sig.
		B	Std. Error	Beta		
	(Constant)	,626	,446		1,404	,163
	Com	,231	,100	,179	2,299	,023
	Pay	,228	,095	,165	2,405	,018
1	Ads	,253	,074	,348	3,399	,001
	Fin	-,085	,045	-,124	-1,896	,061
	CF	,212	,074	,271	2,845	,005

a. Dependent Variable: CR

Source: Personal effort using SPSS.

The sign of the coefficients indicates the direction of the relationship. In our case, payments, advisory services, compliance and crowdfunding are positively related to customer retention, where any increase of one of these variables causes an increase of customer retention.

By comparing standardized coefficients obtained in table 7, it is concluded that advisory services are the most important predictor of customer retention and have the biggest impact with a standardized beta of 0.001, followed by crowdfunding with a standardized beta of 0.005, and compliance with a standardized beta of 0.023. Payments come at last with beta coefficient of 0.018.

To summarize, previous studies and findings in the literature review show that payments, advisory services, compliance, and crowdfunding significantly influence customer retention, supporting hypotheses H1, H2, H4, and H5. Hypothesis H3 is rejected because the independent variable financing has no effect on retaining customers.

4- Discussion and Implication:

This research aimed to evaluate the influence of FinTech on customer retention in Algerian conventional banks. By proving the research hypotheses, this study may help marketers and managers understand how applications of FinTech and customer retention are related.

Our study and previous studies (Baber H. , 2019) and (Baber H. , 2020) populations are Muslim consumers because Islamic finance consumers are Muslims and Algerian consumers are Muslims. The difference is the country; our study in Algeria differs from previous studies in Malaysia and the United Arab Emirates. In addition, the majority of our sample is single men, aged 31–40, who primarily use the Internet. But the majority of previous studies have been on married men, aged 41–50, who primarily use the internet. Because population cultures vary from country to country, people in Malaysia and the United Arab Emirates are very progressive and open-minded. Additionally, the country of the earlier studies has considerably more sophisticated technology than Algeria.

The applications of FinTech, like crowdfunding, advisory services, compliance, and payments, lead to improved customer retention (Baber H. , 2019) and (Baber H. , 2020). This study supports the idea that applications of FinTech and the retention of customers are positively correlated. Our findings, in particular, provide evidence for the existence of positive connections between applications of FinTech (paymetnts, advisory services, compliance, and crowdfunding) and customer retention in Algerian conventional banks. As a result, the study informs conventional banks in Algeria that investing in applications of FinTech is important to retain their customers. This study found that applications of FinTech for regulatory and compliance requirements improve consumer retention. In addition, innovation in the segment of payments leads to retaining customers.

The COVID-19 coronavirus pandemic has had an impact on digital financial inclusion in Algeria and has enhanced the importance of using FinTech. Due to the health crisis and the special precautions necessary for prevention, the Bank of Algeria, as a supervisory authority for the work of banks and financial institutions, emphasized the use of electronic banking services as well as providing merchants with free electronic payment devices.

The coronavirus disease (COVID-19) pandemic has stunned and overwhelmed governments and public health organizations around the world since March 2020 (Rajwa, et

al., 2020). A study found that the potential impacts of COVID-19 as an opportunity for FinTech adoption in the North African region (TIDJANI, 2021). Online crowdfunding has emerged as a major instrument for financing medical treatment and research in recent years, owing to its accessibility and reach (Rajwa, et al., 2020). In Algeria, the government has created bank and postal accounts to receive financial contributions from citizens wishing to help the state's efforts to accelerate the import of medical equipment and pharmaceutical products in sufficient quantity, as well as protective equipment and analysis devices (DzairDaily, 2020). Therefore, the Algerian consumer has a positive perception of crowdfunding online because it helped them collect donations during the outbreak of the Corona virus, and for this reason, crowdfunding has a positive effect on customer retention.

In Algeria, online financing has not been extensively implemented in conventional banks. For example, the BNA has recently signed a contract for Islamic financing via the internet (BNA Algérie, 2022). In addition, Trust Bank Algeria has added on their websites, an informative simulation for financing at one of their branches (Trust Bank Algérie, 2022). Therefore, innovation in the segment of financing has not been widely adopted, and therefore, financing is not particularly important for customer retention. Hence, the banks of Algeria must adopt it as well as do sensitization for consumers to understand this concept.

In 2018, the Bank of Algeria declared that banks and financial institutions must better inform their customers about the banking conditions that apply to banking operations through all appropriate means (Bank of Algeria, 2018). Therefore, today, all banks have free remote customer service. For example, in 2021, SGA Algeria won the first prize for the best customer service of the year because it places the well-being of its customers at the top of all its activities (SGA, 2021). A study stated that regulation, rather than only adoption, may play a bigger role in promoting the usage of financial services, and people feel more secure in their ability to transact thanks to consumer protection (Klapper, Singer, & Ansar, 2021). For this reason, advisory services and compliance have a positive effect on customer retention.

According to our findings, the retention of customers at Islamic and conventional banks is similar. So, conventional banks that have Islamic windows, such as Bank ABC, BNA, BEA, BADR, and BNP Paribas, follow the same customer retention strategy by adopting applications of FinTech, namely, payments, advisory services, compliance, and crowdfunding.

The conventional banks in Algeria must increase financial awareness, which will allow more use of digital services by consumers and enhance confidence in the financial and banking system. In addition, they must accelerate innovation and apply more FinTech to achieve growth in developed countries and to retain their consumers.

Conclusion:

In conclusion, this study indicated that the applications of FinTech (payments, compliance, crowdfunding, and advisory services) positively influence on customer retention in Algeria conventional banks. However, the use of financing has no influence on retaining customers. The findings enable conventional bank executives to develop and implement strategies to increase customer retention through FinTech applications. And the government should play role in assisting banks in their efforts to apply FinTech applications in order to increase customer retention.

Limitations and Future Research:

This study only concentrated on conventional banks. A similar study could be done on other non-banking financial institutions, such as FinTech companies and startups, as they also produce and commercialize FinTech applications. Secondly, a study could be conducted on other FinTech applications such as blockchain and cryptocurrency. Thirdly, this study was conducted in Algeria, and future research can use this model to study customer retention through FinTech applications in other countries. In addition, a study could be done to determine the consumer retention profile that is significantly influenced by FinTech applications such as age, gender, income, and lifestyle. Finally, a study could be conducted to complete our study on determining the impact of customer retention on conventional banks' performance.

Bibliography List:

Books:

Alam, N., & Ali, S. N. (2021). *Fintech, Digital Currency and the Future of Islamic Finance.* Switzerland: This Palgrave Macmillan.

Dorfleitner, G., & Hornuf, L. (2019). *FinTech and Data Privacy in Germany.* Switzerland: Springer.

Mills, K. G. (2018). *Fintech, Small Business & the American Dream: How Technology Is Transforming Lending and Shaping a New Era of Small Business Opportunity.* Switzerland: Palgrave Macmillan.

Mohamed, H., & Ali, H. (2019). *Blockchain, Fintech,and Islamic Finance: Building the Future in the New Islamic Digital Economy.* Boston/Berlin: De Gruyter.

Journal article:

Ahmad, A. U., & Habib, F. (2021). FinTech-Based Islamic Social Financing Products:A Critical Evaluation. *Innovative Strategies for Implementing FinTech in Banking* , pp. 67-82.

Albastaki, Y. A. (2021). When Technology Meets Finance: A Review Approach to FinTech. *Innovative Strategies for Implementing FinTech in Banking* , pp. 1-21.

Anifa, M., Ramakrishnan, S., Joghee, S., & Kabiraj, S. (2022). Fintech Innovations in the Financial Service Industry. *J. Risk Financial Manag.15, 287. https://doi.org/10.3390/jrfm15070287* , 1-19.

Arner, D. W., Barberis, J., & Buckley, R. P. (2017). FinTech and RegTech in a Nutshell, and the Future in a Sandbox. *Research Foundation Briefs, 3(4).* , 1-20.

Ascarza, E., Neslin, S. A., Netzer, O., Anderson, Z., Fader, P. S., Gupta, S., et al. (2017). In Pursuit of Enhanced Customer Retention Management: Review, Key Issues, and Future Directions. *Customer Needs and Solutions 5, no. 1-2, by Springer.* , 65-81.

Babakhanian, M. R., Amin Mousavi, S. A., Soltani, R., & Vakilifar, H. R. (2022). Survey the effect of fintech companies' profitability enhancement on winning customers' loyalty using an artificial intelligence-based optimization algorithm. *International Journal of Nonlinear Analysis and Applications.* , 1–15.

Baber, H. (2019). FinTech, Crowdfunding and Customer Retention in Islamic Banks. *Vision-The Journal of Business Perspective* , 1-9.

Baber, H. (2019). Relevance of e-SERVQUAL for determining the quality of FinTech services. *International Journal of Electronic Finance, 9(4)* , 257-267.

Baber, H. (2020). Impact of FinTech on customer retention in Islamic banks of Malaysia. *Int. J. Business and Systems Research, Vol. 14, No. 2* , 217-227.

Baporikar, N. (2021). Fintech Challenges and Outlook in India. *In Innovative Strategies for Implementing FinTech in Banking.* , pp. 136-153.

Gengeswari, K., Padmashantini, P., & Sharmeela-Banu, S. (2013). Impact of Customer Retention Practices on Firm Performance. *International Journal of Academic Research in Business and Social Sciences,Vol. 3, No. 7* , 68-84.

Golubic, G. (2019). Do digital technologies have the power to disrupt commercial banking? *InterEULawEast 6* , 83–110.

Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W. (2018). On the fintech revolution: Interpreting the forces of innovation, disruption, and transformation in financial services. *Journal of management information systems, 35(1).* , 220-265.

Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business horizons, 61(1)* , 35-46.

Leong, K., & Sung, A. (2018). FinTech (Financial Technology): What is It and How to Use Technologies to Create Business Value in Fintech Way? *International Journal of Innovation, Management and Technology, Vol. 9, No. 2* , 74-78.

Manta, O. P. (2021). Financial Technologies (FinTech), Instruments, Mechanisms, and Financial Products in the Current Context of Artificial Intelligence and Globalization. *Innovative Strategies for Implementing FinTech in Banking* , pp. 22-45.

Mohan, D. (2020). *The Financial Services Guide to Fintech Driving banking innovation through effective partnerships.* Great Britain and the United States: Kogan Page.

Morgan, R., & Hunt, S. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing, Vol. 58* , 20-38.

Mukwada, G., & Molapo, M. e. (2011). The Impact of Customer Retention Strategies in the South African CellularIndustry: The Case of the Eastern Free State. *International Journal of Business, Humanities and Technology Vol. 1 No. 2* , 52-60.

Nataraj, S. (2010). CUSTOMER RETENTION – CRM APPLICATION. *Issues in Information Systems Volume XI, No. 2,* , 44-47.

Pedone, E. (2016). A crowd of peer agents in lending market: the disruptive impact of P2P lending. Dipartimento di Impresa e Management.

Rahman, B., Ahmed, O., & Shakil, S. (2021). Fintech in Bangladesh: Ecosystem, Opportunities and Challenges. *International Journal of Business and Technopreneurship, 11* , 73-90.

Rajwa, P., Hopen, P., Mu, L., Paradysz, A., Wojnarowicz, J., Gross, C. P., et al. (2020). Online crowdfunding response to Coronavirus disease 2019. *Journal of general internal medicine, 35(8)* , 2482-2484.

Reichheld, F., & Sasser, J. W. (1990). Zero defections. Quality comes to services. *Harvard Business Review , 68(5)* , 105-111.

Saba, I., Kouser, R., & Chaudhry, I. S. (2019). FinTech and Islamic Finance-Challenges and Opportunities. *Review of Economics and Development Studies, 5 (4)* , 581-590.

Sabbeh, S. F. (2018). Machine-Learning Techniques for Customer Retention: A Comparative Study. *(IJACSA) International Journal of Advanced Computer Science and Applications,Vol. 9, No. 2* , 273-281.

TIDJANI, C. (2021). COVID-19 and challenges of the Fintech industry: A state of the art and outlooks on the North African region. *Abaad Iktissadia Review Vol: 11 N° 02* , 696-721.

Tripathy, A., & Jain, A. (2020). FinTech adoption: strategy for customer retention. *Strategic Direction, Vol. 36 No. 12* , 47-49.

Visconti, R. M. (2020). FinTech Valuation. *Visconti, R. M. Social Science Research Network.* , 1-33.

Wills, B. (2009). The business case for environmental sustainability (green): Achieving rapid returns from the practical integration of lean & green. *Business Case for Environmental Sustainability , 13(1)* , 32-38.

Internet websites :

Bank of Algeria. (2018, 06 28). *Bank of Algeria.* Retrieved 08 12, 2022, from Bank of Algeria: https://www.bank-of-algeria.dz/pdf/nb2018/note022018.pdf

BNA Algérie. (2022, 08 10). *BNA Algérie*. Retrieved 08 12, 2022, from LinKedIn: https://bit.ly/3Qc2f09

DzairDaily. (2020, 03 25). *Coronavirus : L'Algérie crée une cagnotte pour recevoir les dons des citoyens*. Retrieved 08 10, 2022, from Dzair Daily: https://bit.ly/3cP4DfN

FSB. (2022, May 5). *FinTech.* Retrieved 07 04, 2022, from FSB: https://bit.ly/3RE5XAK

Klapper, L., Singer, D., & Ansar, S. (2021, 04 07). *Regulations help explain variations in financial inclusion*. Retrieved 08 12, 2022, from World bank blogs: https://bit.ly/3AGcJPO

KPMG. (2022, January). *Pulse of Fintech H2'21*. Retrieved 09 01, 2022, from KPMG: https://bit.ly/3REAoam

le soir d'Algérie. (2022, 03 05). *E-paiement: une augmentation de 500% des transactions en ligne*. Retrieved 07 01, 2022, from le soir d'Algérie: https://bit.ly/3AGSLEo

Setälä, K. (2017, 2). *Crowdfunding in the banking industry: adjusting to a digital era.* Retrieved 09 01, 2022, from JYX: http://urn.fi/URN:NBN:fi:jyu-201702171470

SGA. (2021, 06 01). *ELUE MEILLEUR SERVICE CLIENT DE L'ANNÉE EN ALGÉRIE*. Retrieved 08 12, 2022, from SOCIÉTÉ GÉNÉRALE EN AFRIQUE: https://bit.ly/3RfFGZS

Statista. (2022). *Fintech Algeria* . Retrieved 07 02, 2022, from Statista: https://www.statista.com/outlook/dmo/fintech/algeria

Trust Bank Algérie. (2022, 07). *Trust Bank Algérie*. Retrieved 08 12, 2022, from LinKedIn: https://bit.ly/3qugoM5

Googel Trends. (2022). *FinTech*. Consulté le 10 16, 2022, sur Googel Trends: https://trends.google.dz/trends/explore?date=all&q=FinTech