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How Effective is the Banking and Financial Services Sector in the United Arab Emirates in Using Technological Innovations

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ABSTRACT

The paper's goal is to determine the current state and trends of Fintech development in the United Arab Emirates' (UAE) financial sector, customer satisfaction with financial technology implementation in the banking sector, and the impact of financial technologies on the efficiency and competitiveness of financial and banking institutions. Qualitative research conducted through a structured questionnaire is designed to collect data from 500 banking service clients in the UAE. The data was collected through email communication and WhatsApp using Google forms. The data was evaluated using the Likert scale of five-point: 1 = strongly disagree to 5 = strongly agree. According to the survey **results**, the majority of respondents are familiar with FinTech services. The most demanded FinTech service was an app for financial management. Furthermore, the majority of respondents stated that the services they supplied were innovative to them, and the same percentage stated that they were pleased with the services given by their banks. Hence, better service associated with FinTech is seen as a major incentive for them to leave their current bank to the digital one. In addition, when selecting a bank, reliability is the most important criterion, with ease of use of its services ranking in second.

Keywords: FinTech; financial services management; financial institutions; UAE banking system; digital banking; FinTech startups

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INTRODUCTION

FinTech is a term that combines finance and technology. It is developing rapidly across international markets. Although the concept of FinTech has been pioneered in developed countries, emerging markets are catching up quickly against the backdrop of global market fluidity and the boundless nature of technology adoption [1] the international financial system through the unprecedented double expansion of innovation and technology in the financial sector [2]. The shift has been observed in terms of Information and Communication Technology (ICT) adoption, product diversity, implications for cost-effective methods, and information asymmetry. The development of FinTech in the financial sector has reduced transaction costs, increased international capital flows, and increased investment opportunities both locally and internationally.

Financial institutions' interest in adopting FinTech varies across countries [3]. A recent PWC survey revealed that 45% of respondents formed partnerships with FinTech in 2017, showing a 32% increase from the previous year. Germany led the way with a 70% adoption rate, while less established markets like Indonesia and South Africa had rates of 55% and 64%, respectively. To bridge the gap between established organizations and startups, new players must grasp and incorporate the latest technologies [4]. This involves leveraging ecosystems like social media platforms, big tech companies, financial infrastructure, and e-commerce.

PROBLEM STATEMENT

The UAE financial sector is under pressure to modernize and collaborate with emerging FinTech companies [5]. This digital transformation is crucial for staying competitive and adapting to the changing landscape. Significant investments are being made in the UAE to embrace technological advancements in finance. However, integrating FinTech faces challenges, especially due to the country's reliance on dual banking systems. The UAE government needs to establish appropriate regulations to ensure the successful integration of FinTech in the banking sector. Additionally, there are risks associated with FinTech operations, including potential financial

losses. Users in the UAE show reluctance towards adopting FinTech-based services, with only 51% accepting mobile banking, a lower percentage compared to Western countries [6]. This reluctance may be influenced by the complex nature of digital banking and inconvenient user experiences in financial service centers [7].

RESEARCH QUESTIONS

The research discussed the following questions:

a. What is the trend of financial technology in the UAE financial institutions?

b. What are the effects of financial technology on the management of financial services in the United Arab Emirates?

c. What aspects of the legal regulation of the use of financial technologies in the UAE?

d. What could be the recommendations for financial institutions in the United Arab Emirates towards the integration of financial technology?

RESEARCH OBJECTIVES

The research objectives associated with this study are:

- to analyze the pattern of financial technology adoption in the United Arab Emirates;
- to explore the various sectors of finance that have embraced financial technology;
- to assess the influence of financial technology on the performance and competitiveness of financial and banking institutions;
- to gauge the level of customer satisfaction regarding the implementation of financial technology by the banking sector;
- to examine the existing utilization of financial technology for enhancing financial services in the UAE;
- to check FinTech benefits if financial institutions use FinTech technologies.

RESEARCH IMPORTANCE

This research paper is significant for its insights into financial technology and its impact on financial service management in the UAE. It provides relevant findings for financial institutions seeking to adopt FinTech while adhering to conventional and Islamic banking principles. The paper emphasizes the government's regulatory framework to promote FinTech adoption and highlights the benefits for users of the banking system. It can also address user reluctance to embrace FinTech services, especially during the current pandemic where online services are crucial. Additionally, the paper addresses challenges faced by the banking sector in integrating with FinTech, considering its significant contribution to the UAE's GDP. It aims to fill the research gap in the FinTech industry, particularly in financial service management within the UAE.

PREVIOUS STUDIES

Based on authors H. Bao and D. Roubaud the FinTech industry is huge and is expected to expand in the coming years [7]. In this regard, CB Insights revealed that there are 41 VC-backed FinTech institutions with a combined value of $ 154.1 billion. As a result, a significant catalyst for its growth is the increasing number of traditional banks that are embracing and endorsing technology by acquiring, investing in, or forming partnerships with FinTech startups.

Furthermore, H. Zarrouk, T. El Ghak and A. Bakhouche [8] mentioned that financial technology companies are integrating technologies such as blockchain, artificial intelligence, and data science into traditional financial sectors to make them faster, safer and more efficient. Thus, a paper published by scholar M.M. Mursalov [9] reported that FinTech is one of the rapidly growing technology sectors, with organizations innovating in almost every area of finance. For example, from loans and payments to stock trading and credit scoring. However, a study by Investment Monitor revealed that the courage behind FinTech varies from application to application and from project to project [10].

However, with the rise of FinTech, there are increasing concerns about cyber security in the industry [11], for example, the explosive and rapid growth of FinTech markets and institutions at the international level has increased exposure to uncertainty in the industry infrastructure while making financial technology companies a big target for cybercriminals.

Hence, the study examined the influence of various banking regulatory instruments on the likelihood of a banking crisis [12]. The results confirmed the effectiveness of banking regulation in predicting periods of stability in banking systems.

FinTech Examples

As the FinTech industry is growing rapidly and evoking the changing technology of the industry, banks and traditional financial services companies are also looking for ways to adopt FinTech services for various purposes [13]. In this regard, here are some of the areas of finance that FinTech is increasingly adopting.

D.A. Artemenko and S.V. Zenchenko [14] considered the issues related to the study of the prospects for the development of financial technologies in global practice and the possibilities of their adaptation in the activities of Russian financial organizations using an official data source of the Central Bank (Bank of Russia). It was concluded that improving the technological effectiveness of banking processes is possible on the basis of digitalization using various financial technologies. Additionally, [15] considered mobile banking as the largest part of the FinTech industry. Examples of some new banks are: Starling Banks and Monzo in the UK, which are digital banks that rely on mobile devices only and work on advanced technology within the company. Also, in the USA, Chime and Moven are at the forefront of smartphone-dependent banks rather than physical presence. Goldman Sachs, the traditional investment bank, switched to digital retail in 2016 [16].

Another example where FinTech has developed an explosion is the investment and savings advantage of financial banking. With the development of FinTech, investment barriers were broken, and companies such as Stash, Robinhood and Acrons played a role in this regard [17]. While these applications are different in approach and each uses a combination of automated small-dollar investing and a savings method such as introducing consumers to markets and instant deposits on purchases.

Furthermore, this paper investigated the factors that influence the attitudes of economic agents towards digital currencies and the effects of financial literacy on their utilization as investment assets and payment methods. The findings of this study [18] revealed that "insufficient financial literacy results in an overestimation of participants' knowledge within the cryptocurrency market".

Although the concepts of crypto currency and block chain are inherently unique technologies that can be considered outside the realm of FinTech, they essentially create practical applications that help FinTech develop further. In this regard, examples of some large block chain companies are Spring Labs, Circle, Gemini, and examples of crypto currencies are SALT and Coin base [19].

Moreover, P. S. Koklev [20] developed a methodological toolkit for scenario forecasting of possible consequences for the national economy of the introduction of blockchain technologies into the economic sector. The authors concluded that: "the integration of blockchain technologies into the business processes of the national economy affects the change in the financial results of credit institutions, an increase in capital liquidity of economic agents, as well as the acceleration of the processes of socialization of channels of access of business entities to financial markets".

Also, A.I. Mention [21] explained that, not surprisingly, there is a strong association between FinTech, machine learning, and training. The strength of this subset of Artificial Intelligence lies in its ability to run massive amounts of data through algorithms designed to detect risks and trends, allowing businesses, consumers and banks to report purchase and investment risks early in the process

Additionally, P. Dwivedi and co-authors [22] tested the hypothesis about the applicability of machine learning methods in training models capable of accurately forecasting the market capitalization of an enterprise. Author of this paper concluded that machine learning can be applied as a more accurate, unbiased, and less costly approach to value a company. Feature importance analysis can also be used to understand and further explore the value creation process.

Furthermore, consumers face difficulty in requesting credit reports multiple times within a year without impacting their credit score. FinTech has made the entire lending world more transparent for everyone. In this regard, examples of lending companies are Petal, Tala and Credit Karma [23].

The Age of FinTech in the UAE

According to [24], it is undeniable that the public is entering the age of FinTech. Internationally, the public finds itself at a moment of increased development in the financial services industry with a record level of mobile phone ownership. Moreover, the COVID-19 pandemic has moved digital services from an episodic to an indispensable level. The expansion of FinTech

is evident in the increasing trend observed in the Middle East, indicating a flourishing and dynamic environment for innovative FinTech solutions. For example (*Fig. 1*), the number of FinTech startups has gradually increased since 2015, and reaching 51 deals in 2019 [25]. The following figure shows the total funding and the annual number of deals of FinTech startups in the Middle East.

The United Arab Emirates has prioritized the advancement of financial technology as a national agenda, positioning it as one of the leading nations in the progression of technology within the financial sector. In particular, Abu Dhabi Global Market is committed to providing the ideal development for moving financial services into the future [26].

Looking at the growth of the financial services market (*Fig. 2*), it is reported that it continued to grow with a massive number of capitals raising deals in 2021, despite the pandemic (UAE FinTech Era, 2021). The following figure shows 2021 as the peak year for capital raising deals.

Similarly, paper [27] addressed that FinTech emerges as a prominent participant in the rapidly growing global market, numerous financial institutions are enhancing their offerings and simultaneously pursuing technological advancements such as advanced big data analytics and artificial intelligence. For example, Tarabut Gateway, the leading open banking platform in the Middle East, is revolutionizing the relationship between banks and financial technology.

Payment companies currently dominate the UAE FinTech market, accounting for a quarter of all FinTech companies. They are vastly outperforming their competitors, like InsurTech and Blockchain. Although there are relatively few FinTech companies in emerging industries such as artificial intelligence and open banking, significant development is expected in the coming years. The following (*Fig. 3*) shows the payment companies that make up the largest percentage in the United Arab Emirates [28].

Looking at the emerging trend above, it is estimated that 465 FinTech companies in the UAE will generate $ 2 billion in revenue from venture capital funding by 2022, compared to $ 80 million in 2017 [30]. In this aspect, the country shows a significant opportunity for companies and investors alike to take advantage of a world-class environment for innovation and to become part of the transformation of the traditional financial services sector towards a more modern one.

Impact of FinTech on Financial Services Sector in the UAE

According to [31], the UAE has one of the highest levels of Information and Communication Technology adoption internationally, ranking sixth out of 140 countries. Internet users make up more than 91% of the population, while mobile broadband and mobile cellular subscriptions have increased by 243% and 211%, respectively. Looking at these achievements, it was noted that the UAE government has applied its decentralized approach in the field of financial technology by introducing 40 free zones among its seven emirates, while there are specific and separate regulatory and governance structures under which each free zone operates. They are largely independent of the mainland authorities.

Therefore, [32] revealed that the tendency toward mobile-based financial payment services helped the Financial Services Department to provide better and secure payments.

Similarly, [33] identified the impact of FinTech in the context of the payment industry in the UAE while examining the developmental capacity of FinTech in retail, wholesale and corporate consumer payment procedures.

Challenges Being Faced by UAE Financial Management in the Adoption of Fintech

As per authors AlMomani and K. Alomari [10], the integration and development of financial technology conduit ecosystems in the United Arab Emirates (UAE) encounter various challenges, including a deficiency in essential skills. However, this challenge is not unique to the UAE, but the emergence of FinTech ecosystems at the international level has led to a growing demand for special expertise and skills. The increasing speed with which financial services, educational institutions, and government organizations are adapting.

One of the primary hurdles faced by financial institutions in the development of FinTech solutions is the cost associated with conducting business. These costs encompass both time and resources, which can significantly increase when integrating the new system into the FinTech ecosystem. Hence, over the past two

	Disclosed fintech funding ($m)	MAGNiTT undisclosed funding estimate ($m)	Deals
2015	18	0	18
2016	18	5	28
2017	109	12	38
2018	42	2	46
2019	25	5	51

Fig. 1. **Annual Number of Deals and Total Funding in MENA-Based FINTech Startups, 2015–2019**
Source: Based on J. Jagtiani et al. [24].

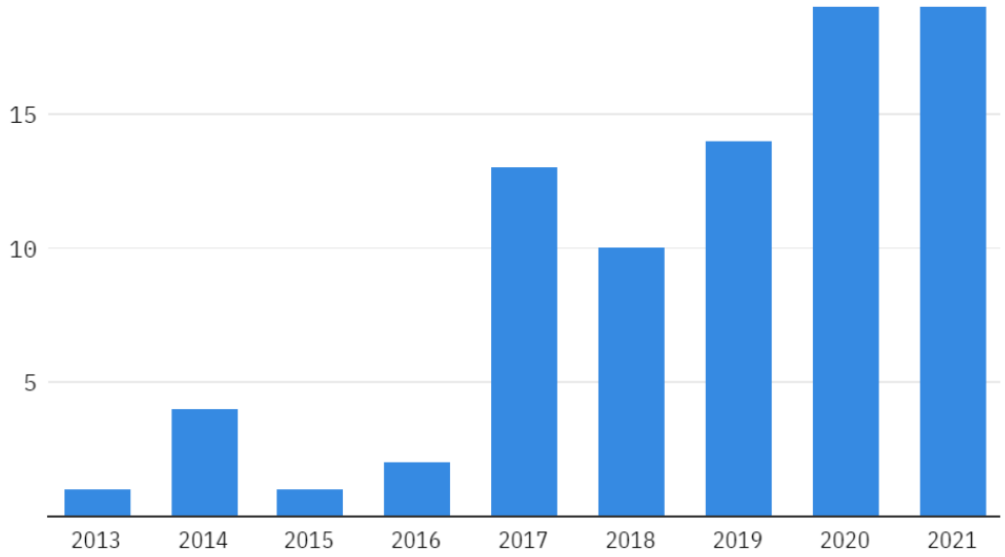

Fig. 2. **Number of Capitals Raising Deals in the Financial Services Sector, 2013–2021**
Source: Based on J. Jagtiani et al. [24].

years, Dubai International Financial Center (DIFC) and Abu Dhabi Global Market (ADGM) have demonstrated a high level of activity in promoting a flexible regulatory framework that enables financial services centers to manage the expenses associated with conducting business.

Regulation Laws in the UAE

The UAE has a strong legal system aimed at bolstering Anti Money Laundry efforts while supporting the widespread integration of crypto assets into commercial and government operations. The author noted that "a review of the UAE legislative framework reveals critical issues. First, current regulations do not cover decentralized finance (DeFi) or non-fungible tokens (NFT). Therefore, the absence of clear regulations for DeFi and NFT protocols has created room for money laundering and related criminal activities. Second, there is a high level of

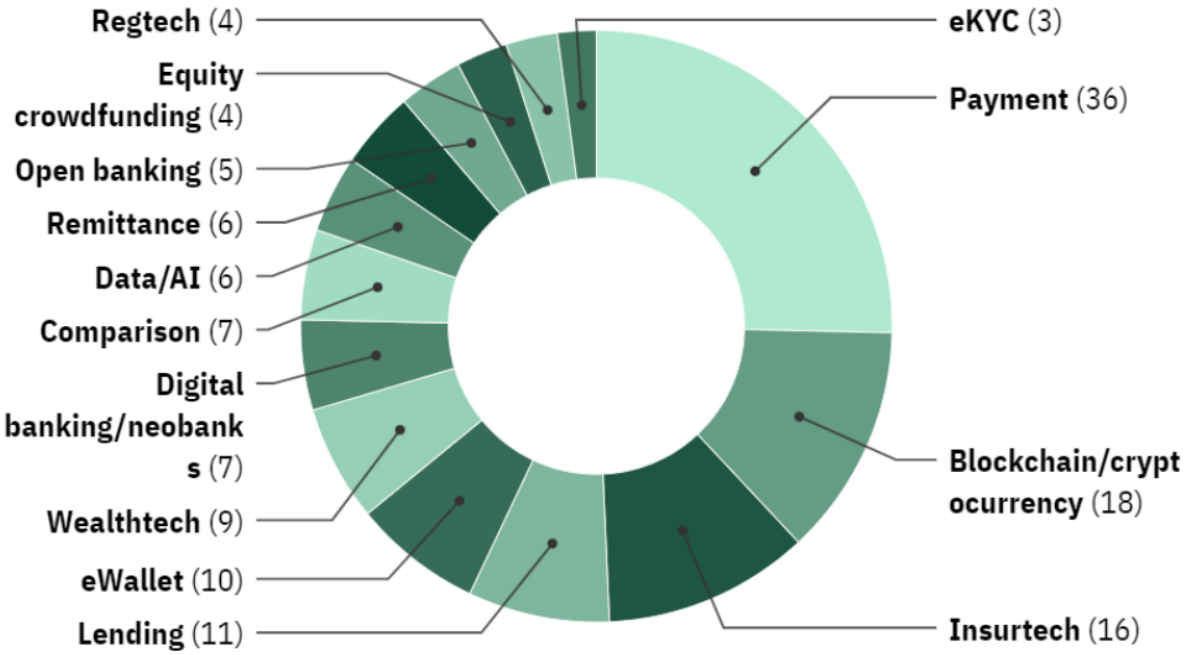

Fig. 3. **Payments Company Makes up Biggest Proportion of Fintech Companies in UAE Breakdown of Fintech Companies by Subsector, 2021**

Source: Based on A. AlMomani and K. Alomari [10].

fragmentation in the UAE's legislative landscape" in the paper [30].

The UAE does not have uniform national laws that apply to all Emirates. Fragmentation is not unique to the UAE, but a major global problem affecting the United States and the EU. Therefore, the Financial Action Task Force (FATF) should develop a global standard that supports a unified/harmonized application, laws and regulations related to cryptocurrencies and blockchain technology.

RESEARCH METHODOLOGY

Qualitative research was carried out through online surveys with the primary objective of gathering data on FinTech and its influence on financial service management in the UAE. The survey was conducted among a targeted population of 500 banking service clients, as they were deemed the most suitable group for the research focus.

The survey questionnaire was designed to be closed-ended, allowing respondents to complete it easily and with flexibility. Participants were required to select the most suitable option from various choices provided. However, a Likert scale was utilized to gather the data [32], as it is commonly employed in constructing survey questions that yield more precise insights into the opinions of respondents. The questionnaire consisted of two sections: the first section aimed to collect demographic information, while the second section focused on obtaining data through an Agree and Disagree format using the Likert Scale The purpose of gathering demographic details was to acquire more relevant information about the users of financial institution services and their level of engagement with FinTech applications. The questionnaire comprised a total of 15 questions derived from the existing literature.

Likewise, a wide range of secondary sources have been used to collect indirect data.

DATA ANALYSIS

This section presents the findings of the survey through the use of tables and graphs, with percentage analysis being employed for analysis purposes. As previously mentioned, the questionnaire was divided into two parts. The first part focuses on capturing the demographic information of the respondents, while the second part delves into examining the influence of FinTech on the management of financial services in the UAE.

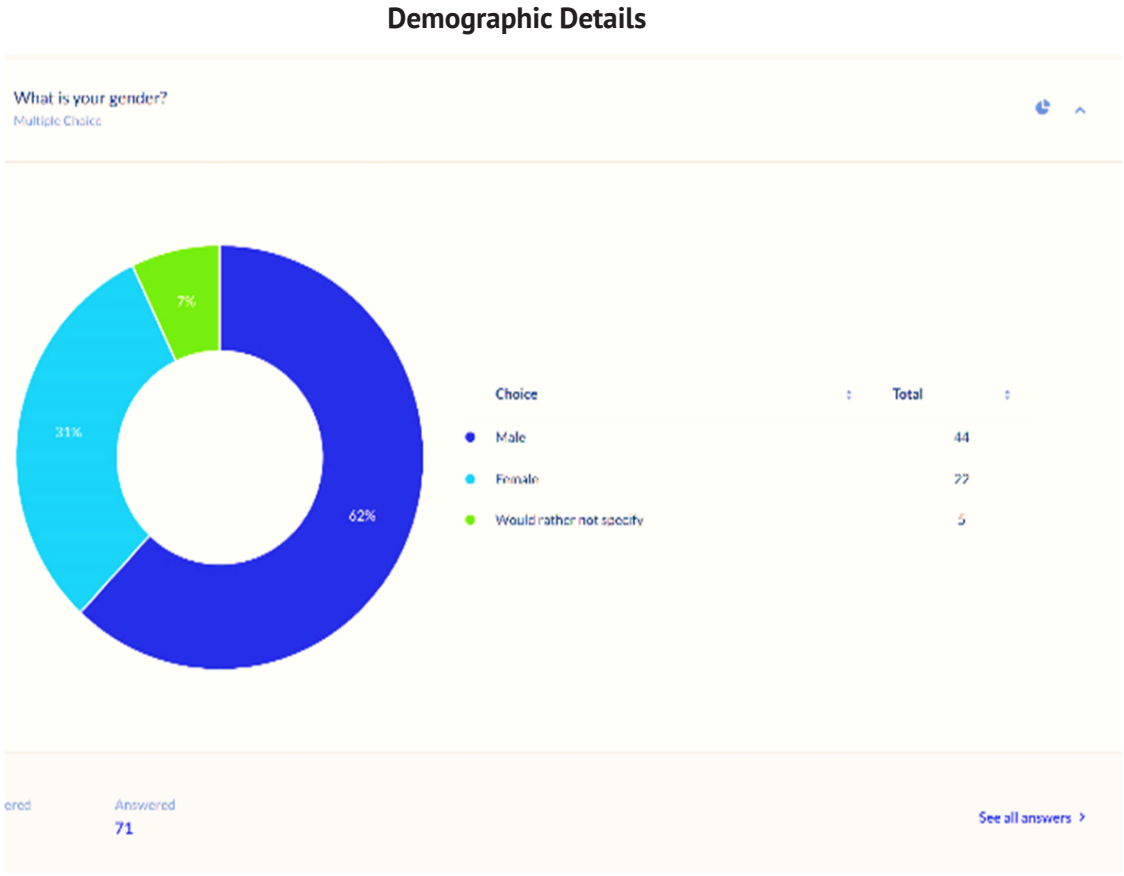

Fig. 4. **Question 1. What is Your Gender?**

Source: Researcher google survey analysis.

Fig. 5. **Question 2. What is Your Age?**

Source: Researcher google survey analysis.

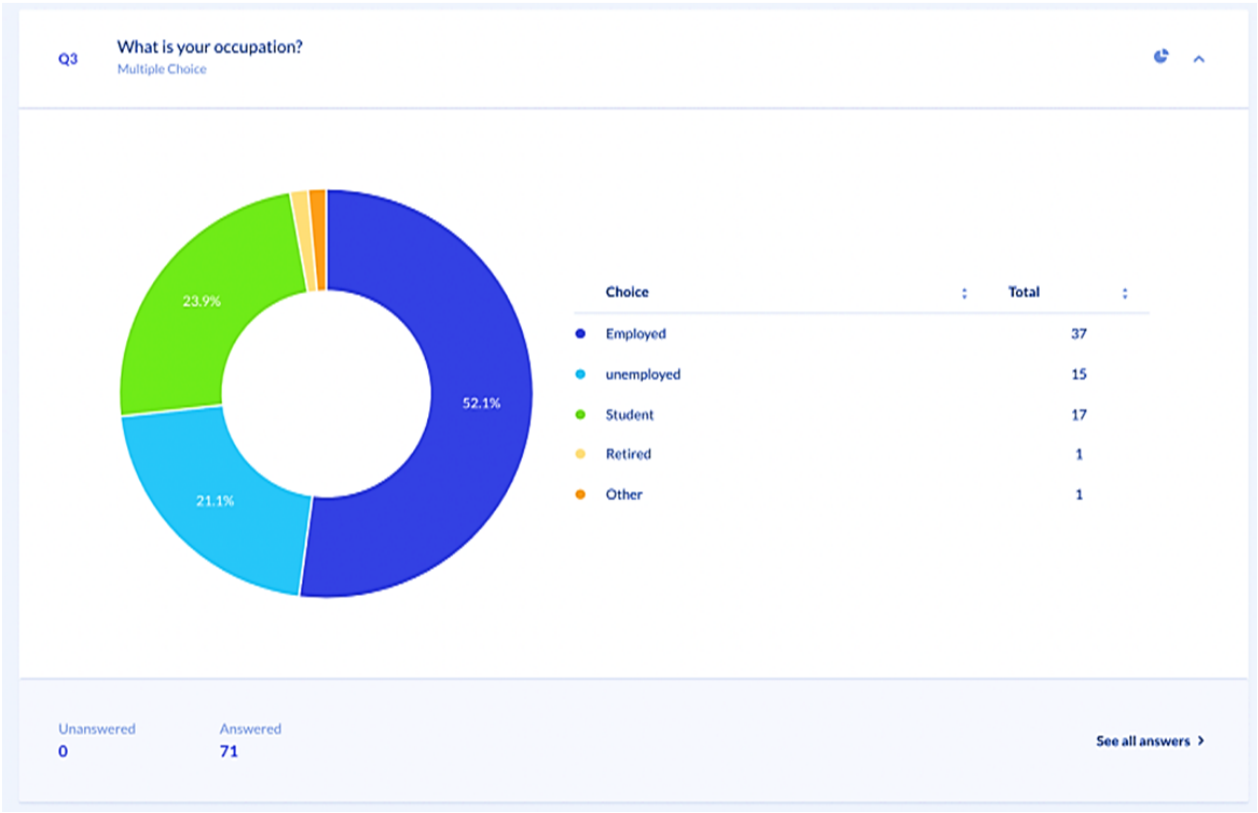

Fig. 6. **Question 3. What is Your Occupation Statue?**

Source: Researcher google survey analysis.

Figure 4 revealed that the male respondents dominated in the survey with a majority of 62%.

Figure 5 showed that different individuals from different age groups contributed to the survey. Around 47% of the respondents were between 26–35 years old.

According to *Fig. 6*, the majority of respondents were employed (52.1%), followed by 21% who were unemployed, and the remaining participants were students or retired individuals.

FinTech Questions: Below are the Questions that Connected with Fintech

Figure 7 concluded that people are not very aware of the term FinTech — since only 117 out of 450 respondents replied "yes", accounting for 26% compared to 44% who said "no".

Figure 8 demonstrates the preferences of respondents for various FinTech services. According to the data, 29% of participants found the Wealth Management App to be the most intriguing, followed by 26% who favored the Virtual Currency Platform. Additionally, 24% selected Peer to Peer Lending App, while AI/Robot Advisor was chosen by 24% of respondents. Only 3% of participants expressed interest in other FinTech services.

The examination of the pie chart in *Fig. 9* reveals that 65% of respondents expressed satisfaction with the innovative services offered by their current bank. In contrast, 25% of participants expressed dissatisfaction with the level of service improvement.

According to *Fig. 10*, the findings show that 65% of the respondents expressed their satisfaction with the services provided by their respective banks. On the other hand, 25% of the participants indicated dissatisfaction with the services offered by their bank.

The bar chart presented in *Fig. 11* displayed the reasons for customers switching their accounts to FinTech banks. It revealed that 46% of respondents left their traditional banks in favor of better financial technology. Furthermore, 19.7% switched their accounts to access a more user-friendly service, 11.3% cited the need for faster services, and another 11.3% were enticed by financial incentives. Additionally, a portion of the respondents transferred their accounts due to the lower transaction fees offered by FinTech banks.

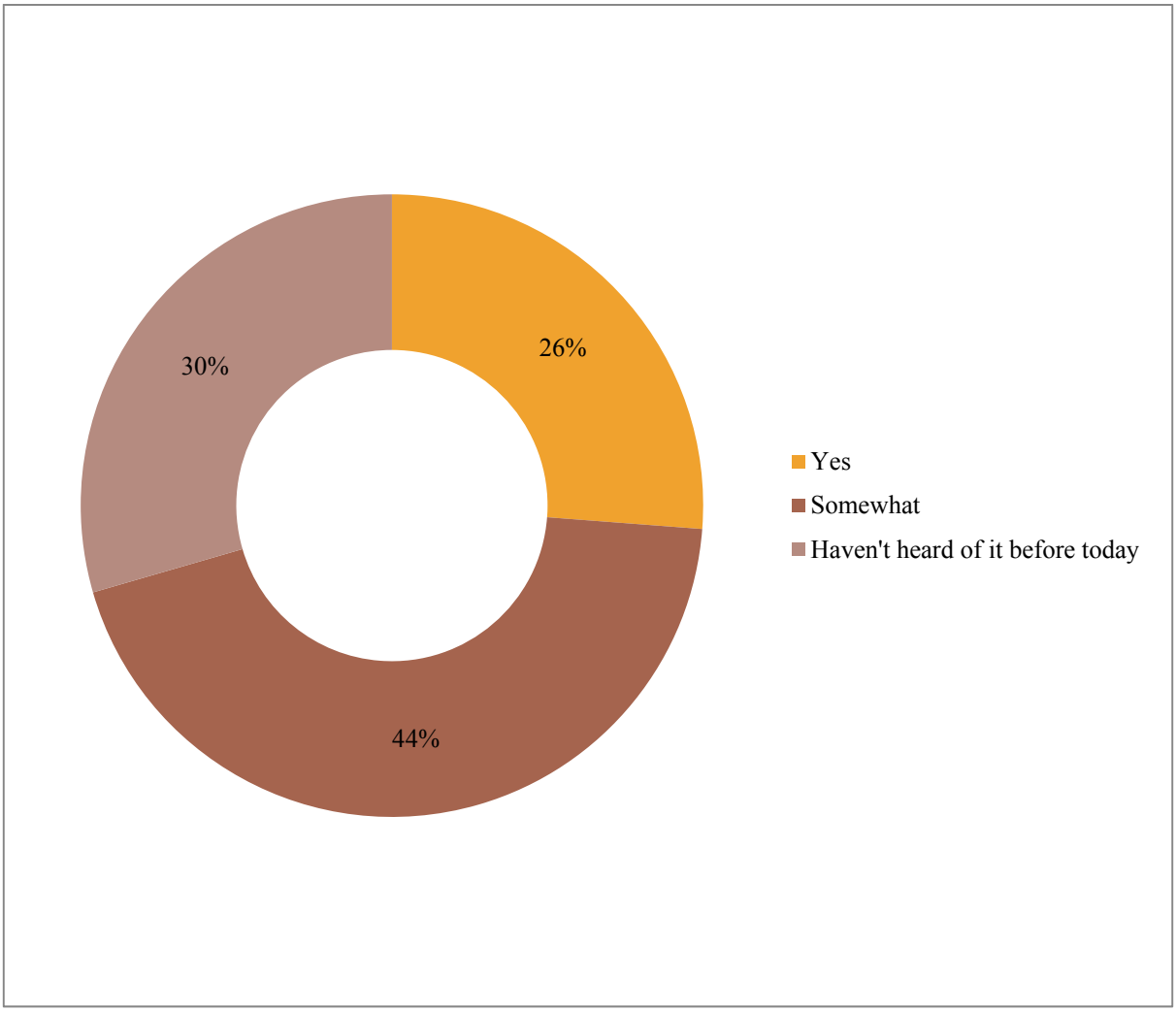

Fig. 7. **Q4. Are you Familiar with the Term FinTech?**

Source: Researcher google survey analysis.

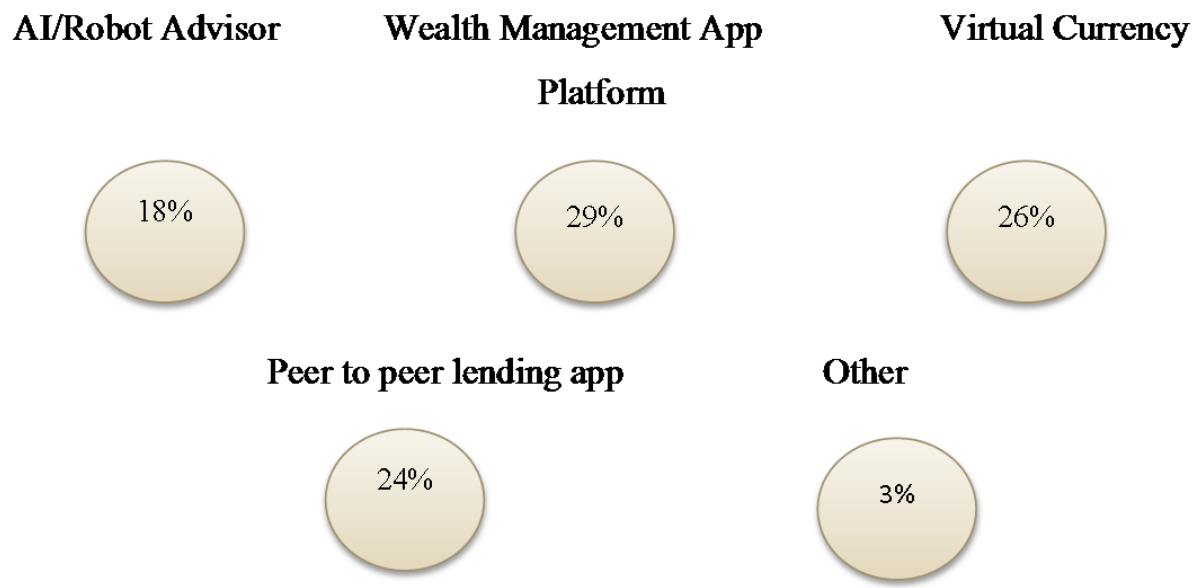

Fig. 8. **Q5. What Types of FinTech Services Would you be Interested in?**

Source: Researcher google survey analysis.

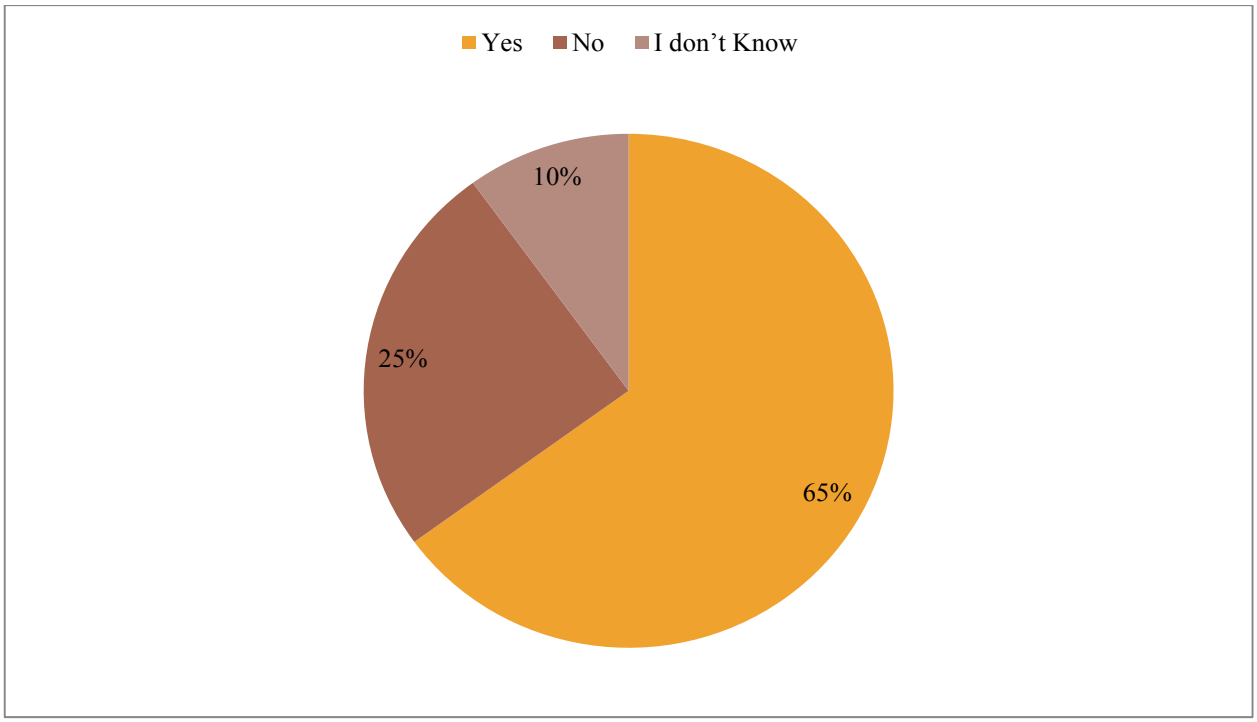

Fig. 9. **Q6. Are the Services of Your Current Bank Innovative?**

Source: Researcher google survey analysis.

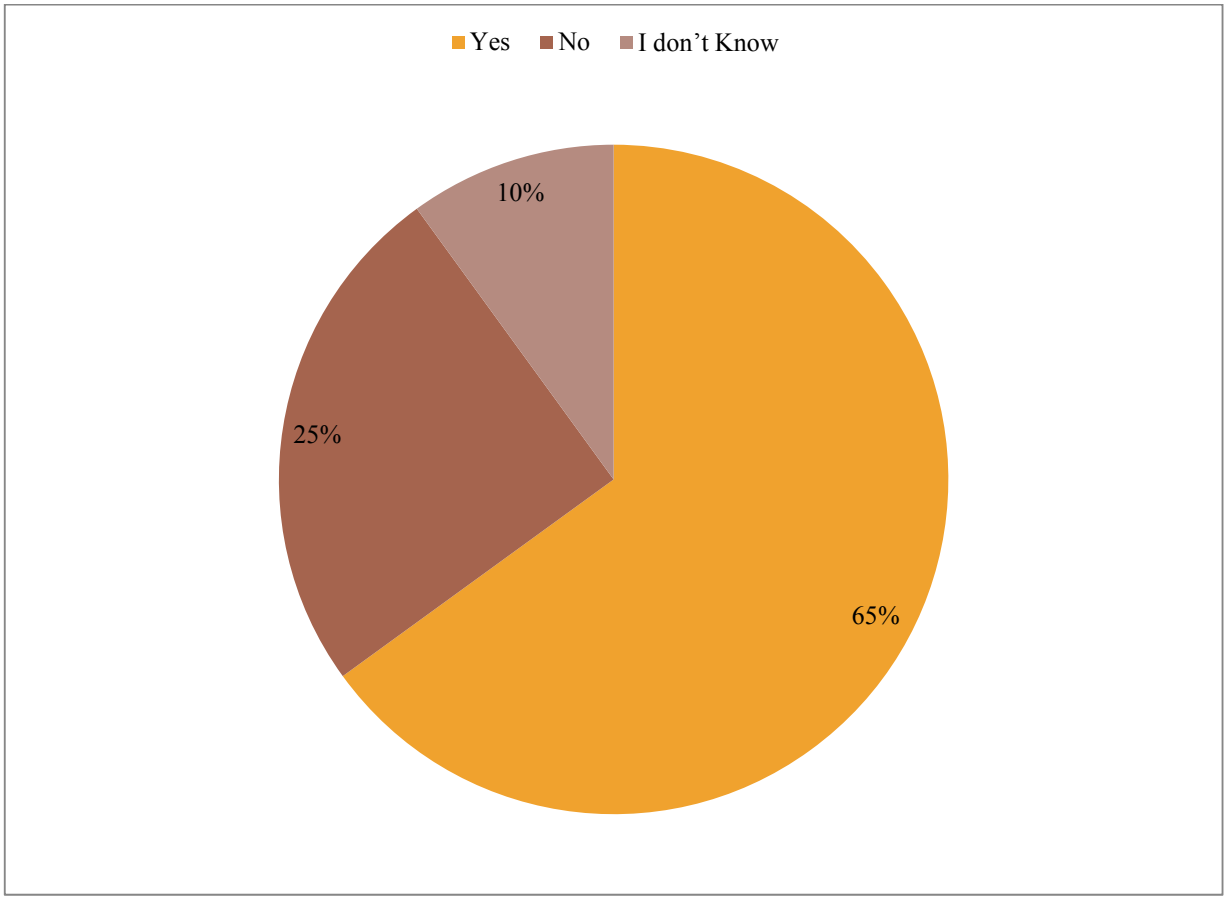

Fig. 10. **Q7. Are you Overall Satisfied with the Services at your Bank?**

Source: Researcher google survey analysis.

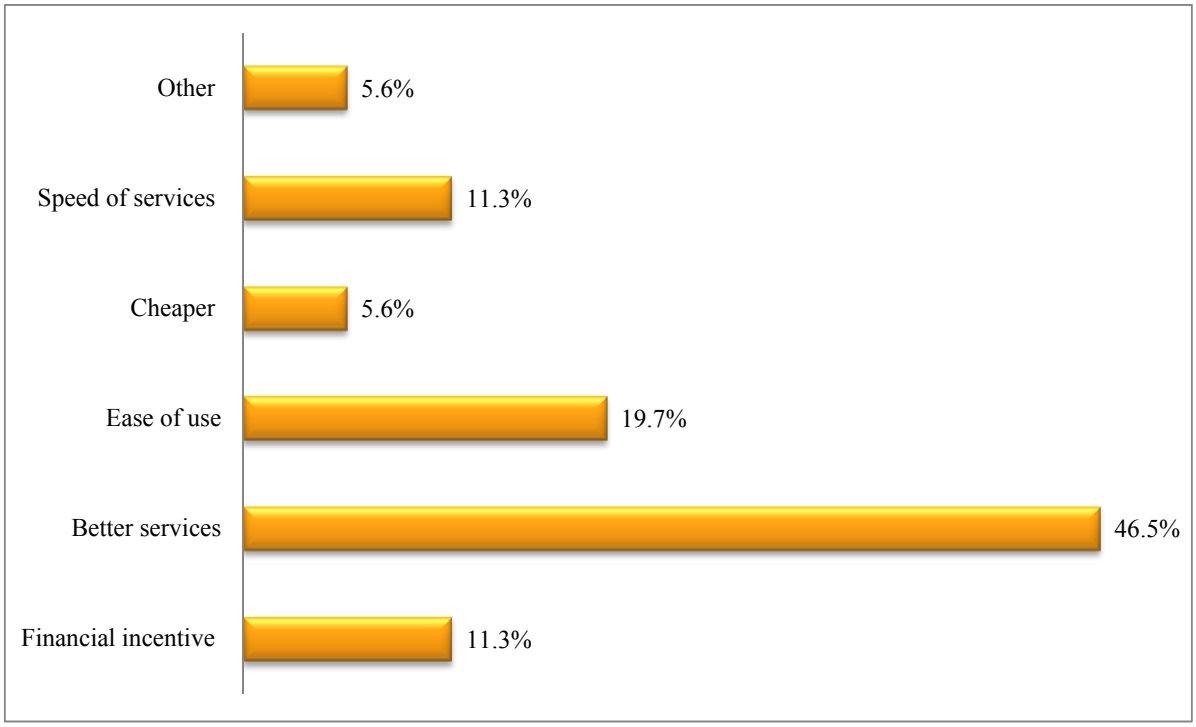

Fig. 11. **Q8. What Services or Incentives Would Persuade You to Leave Your Current Bank to Join a Fintech Bank?**

Source: Researcher google survey analysis.

The *Fig. 12* pie chart indicated that 36% choose their banks in terms of reliability, while 35% support ease of use of services, 12% because of diversification and quality of services, and 9% for financial incentives. The rest choose the bank because of prestige and other issues.

The stacked bar chart in *Fig. 12* indicates that the most commonly used payment method among respondents is debit/credit cards, with 70% of participants using them on a daily basis. In comparison, 40% of respondents reported using contactless payment methods, while 35% preferred cash transactions.

Participants using credit/debit cards weekly were given 37%, followed by cash by 35.4% of respondents.

Customers do not pay by check frequently, as 58.3% of respondents report that they do not currently use them.

DISCUSSION AND ANALYSIS

The results revealed that 62% of the respondents were male and 31% were female. The remaining 7% of respondents did not intend to specify their gender. Based on the findings, it can be observed that 36.6% of the participants fall within the age range of 18 to 25 years. Additionally, 43.7% of the respondents are between 26 and 35 years old, while 16.9% are between 35 and 45 years.

Demographic details showed that there were more males in the population as the majority of respondents were young. Regarding the respondents' profession, it was found that 52.1% of the respondents are employed, 21% of the respondents are unemployed, 23% of the respondents are students, and the rest are either retired or others. The results showed that the majority of the respondents who participated in the survey were employees.

Furthermore, based on the findings, it was concluded that FinTech is a new concept in financial services management and that the majority of people in the UAE are not yet familiar with it. However, the people of the UAE are open to accepting all FinTech services based on their perceived usefulness.

Moreover, respondents found the services of their current bank are innovative, and they are satisfied with the services in their bank. The majority of respondents answered reliability and financial incentives as the most important factors in financial services.

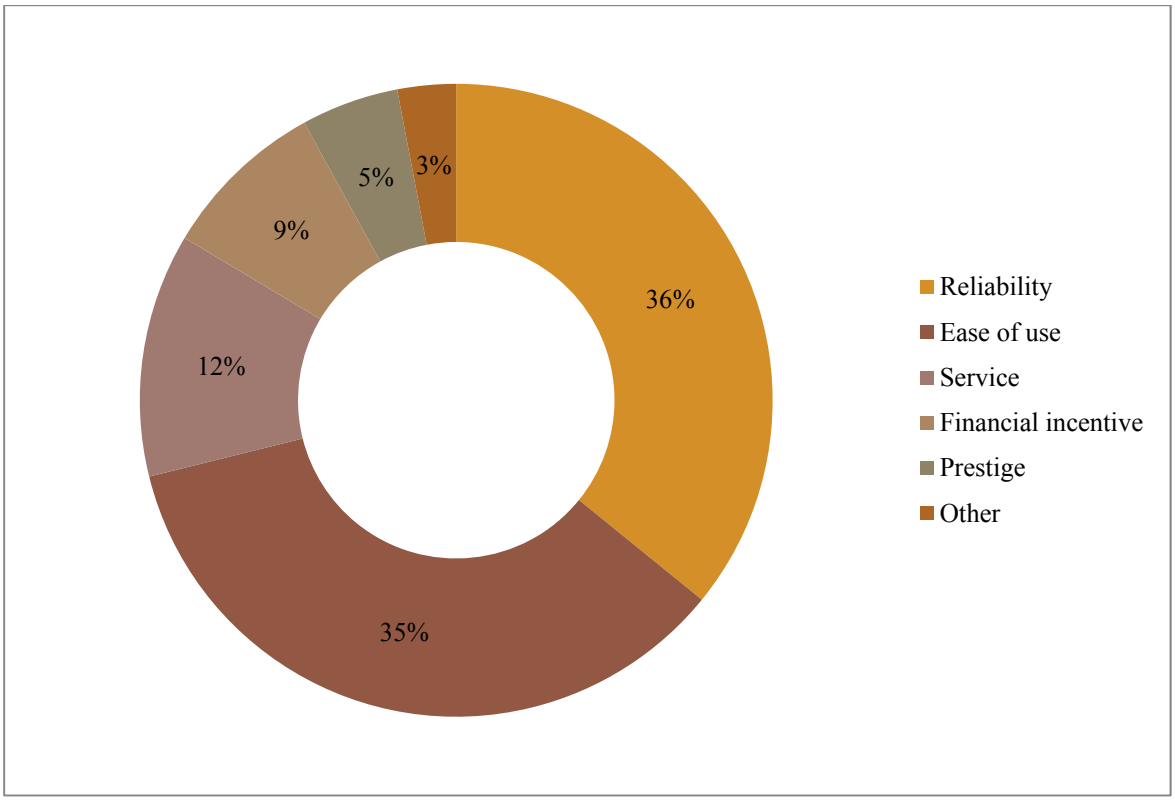

Fig. 12. **Q9. What are Most Important Factors in Selecting a Banking Institutions?**

Source: Researcher google survey analysis.

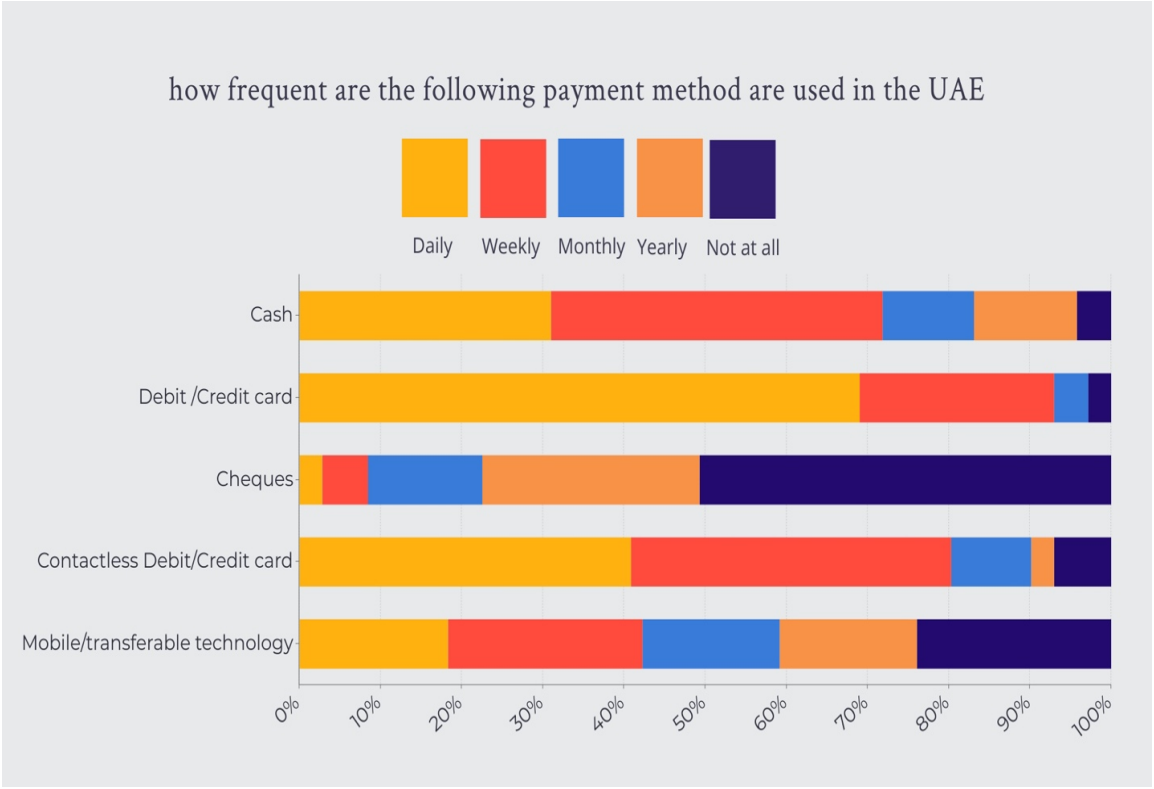

Fig. 13. **Question 10 to Question 15. How Frequently do you use the Following Payment Method?**

Source: Researcher google survey analysis.

LIMITATIONS OF THE RESEARCH

The primary constraint of this study is the sample size, given that FinTech is being embraced by numerous financial services centers and banking systems in the UAE, with millions of users. Consequently, the sampling of 450 respondents may not be fully representative of the entire population utilizing FinTech services. This limitation could potentially impact the outcomes, and results obtained may differ with a larger sample size.

The second limitation relates to the number of questions included in the questionnaire. Given the extensive scope of FinTech's impact on various aspects of financial services and the banking sector, encompassing these aspects in only 15 questions might create a gap. It would have been ideal to have a larger number of questions to cover all domains comprehensively. However, a specific number of questions were included in the questionnaire to prevent respondents from losing interest or becoming fatigued while completing it.

The last limitation is that the responses obtained from the survey rely entirely on the subjectivity of the individuals surveyed. Consequently, different respondents may have interpreted and answered the survey questions in varying ways, and some may have exhibited reluctance to complete the survey. As a result, the responses provided in such circumstances may not accurately reflect their true understanding of financial technology and its impact on financial institutions.

CONCLUSION

The subsequent findings present notable conclusions:

- The initial observation pertains to the comprehension of financial technology, which amalgamates finance and technology. Internet-based technologies are utilized in financial and banking institutions as FinTech. This concept is not only rapidly advancing in banking and financial management centers, but it is also recognized as a convenient approach for conducting financial transactions.
- Fintech companies are integrating technologies like blockchain, artificial intelligence, and data science into traditional financial sectors to enhance speed, security, and efficiency. FinTech finds applications in various financial domains, with mobile banking occupying a significant portion of the FinTech industry. FinTech has revolutionized investment and savings options within the financial sector.
- Despite the rapid technological advancements and easy access to advanced solutions in the banking sector, many financial institutions in the UAE still lag behind in adopting FinTech services. Therefore, there is a need to raise awareness about the benefits of FinTech among consumers who are more inclined towards traditional services and show hesitation in embracing FinTech.
- The impact of FinTech on financial service management in the UAE is evident in the growing preference for mobile financial payment services and transactions. These advancements have facilitated better and secure payments, improved performance, and enabled high-value creations for companies adopting FinTech in the UAE.
- When examining the challenges faced in integrating and developing FinTech ecosystems within the UAE banking system, it is evident that the international emergence of FinTech ecosystems has created a demand for specialized expertise and skills. The UAE should focus on bridging this skills gap by regulating the development of financial technology and attracting the required talent to the country.

FUTURE DIRECTION

Further research is warranted to address the limitations identified in this study and expand our understanding in this area. For instance, in a study conducted with a larger sample size and a larger number of questions, the researcher can determine the best location for the impact of financial technology on the management of financial services. Future research could identify other aspects not mentioned in this study that could have an impact on the management of financial services in the UAE in relation to the development of financial technology and its implications.

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