

Fintech Adoption in Saudi Arabia: A Quantitative Analysis of Financial Impacts and Regulatory Challenges within Vision 2030

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ABSTRACT

Introduction: Global financial ecosystems are changing rapidly as countries are adopting financial technology, or Fintech, and Saudi Arabia is no exception. The current study focused on exploring the impacts of Fintech adoption in Saudi Arabia within the context of Vision 2030. A mixed-method approach is used with the main focus on financial inclusion, transaction costs, and economic growth. The quantitative aspect of the study explored financial metrics, and for qualitative data, interviews and focus groups were conducted with key stakeholders. The findings of the study showed that Fintech adoption had a great impact on financial inclusion, transaction costs, and GDP. From 2018 to 2023, the unbanked population was reduced by 25%, with a 40% increase in rural banking adoption. A 35% decrease was seen in transaction costs, and SMEs experienced a 66.6% decrease in fees. Fintech led to a 2.8% increase in GCP annually. The GDP growth was mainly driven by SMEs and foreign investments that led to a total USD 2 billion increase during the study period. This research also identified regulatory challenges, which include cybersecurity risks, compliance complexities in anti-money laundering, and the need for solutions that are Sharia-compliant. In addition, the study showed that the SAMA Regulatory Sandbox facilitated product launches and increased user confidence, showing its effectiveness. The adoption of Fintech is in line with Vision 2030's objectives. However, to realize its full potential, it requires investments in innovation, regulatory collaborations, and focused assistance for marginalized groups. By tackling these issues, Saudi Arabia can establish itself as a Fintech leader in the region, promoting financial inclusion and long-term economic prosperity

Keywords: Fintech Adoption, Financial Inclusion, Vision 2030, Saudi Arabia, Digital Financial Services, SAMA Regulatory Sandbox, Economic Diversification.

INTRODUCTION

Financial technology, or Fintech, is revolutionizing the way financial services are delivered globally. It is introducing innovations that increase the accessibility, security, and efficiency of financial transactions. According to (Aggarwal, Nayak, & Bhatt, 2023), the worldwide Fintech ecosystem has grown rapidly due to a number of factors, including the need for digital financial services, the widespread use of smartphones, and better internet connectivity. Fintech has become a key element of Saudi Arabia's Vision 2030 initiative, which seeks to modernize key sectors, such as financial services, to diversify the economy and reduce reliance on oil revenue. The establishment of the SAMA Regulatory Sandbox, which allows Fintech companies to test new products in a secure environment, was a crucial contribution by the Saudi Arabian Monetary Authority (SAMA) (Saudi Central Bank, 2023).

Saudi Arabia's Vision 2030, which prioritizes technological innovation and economic diversification, includes Fintech as a major component. Modernizing financial services is a key component of Vision 2030, which aims to ensure financial inclusion and encourage entrepreneurship. As of 2023, Fintech solutions have grown in Saudi Arabia, particularly in areas like mobile payments, blockchain-based loans, and digital identity verification (Mohd Haridan, Sheikh Hassan, Mohammed Shah, & Mustafa, 2023). Financial inclusion and economic growth in Saudi Arabia have been significantly impacted by the adoption of Fintech. According to (SYAFIRA, NURAINAS, & SYAMSUARDI, 2024), Fintech solutions—in particular, crowdfunding and peer-to-peer financing platforms—are

making it easier for small and medium-sized businesses (SMEs) to get finance, which in turn promotes entrepreneurship and the creation of jobs. By giving more individuals access to formal financial institutions, the increasing use of digital financial services is also assisting in closing the gap between urban and rural populations

Global Trends in Fintech Adoption

In the last decade, the use of Fintech has increased dramatically around the world. According to the EY Global Fintech Adoption Index (2019), adoption rates increased from 16% in 2015 to 64% in 2019. With digital payment platforms like Alipay, Venmo, and Paytm, emerging economies like China and India are at the forefront of Fintech adoption and transforming the ways consumers and businesses interact (Zhao, Li, Yu, Chen, & Lee, 2022). These developments satisfy the rising need for digital financial infrastructure by offering quick, safe, and affordable financial services. Another new development that is upending the global financial system is open banking. Open banking regimes, like the PSD2 Directive of the European Union, have made it possible for Fintech companies to safely access consumer data, which has encouraged competition and innovation. It made the financial industry more transparent and consumer-focused (Kim & Shin, 2021).

Fintech Adoption in Saudi Arabia: Current Status and Trends

Saudi Arabia has witnessed a notable surge in the adoption of Fintech, as evidenced by the rise in startups from 10 in 2018 to over 80 in 2023 (Fintech Saudi, 2023). By offering cutting-edge payment options to both consumers and companies, major players like STC Pay and HalalaH have emerged. By enabling Fintech companies to test their products in a controlled setting, the Saudi Arabian Monetary Authority (SAMA) inaugurated its Regulatory Sandbox in 2018, promoting regional Fintech advancements in the nation (Saudi Central Bank, 2023).

Financial Impacts of Fintech Adoption in Saudi Arabia: Financial Inclusion, Blockchain, Digital Payments

The use of Fintech in Saudi Arabia has a major impact on cost savings, operational efficiency, and financial inclusion. One of Fintech's most important contributions to Saudi Arabia is financial inclusion. Previously, many people did not have access to formal financial services, particularly those who lived in rural areas or belonged to lower-income groups. By offering practical, affordable substitutes for conventional banking services, Fintech solutions—in particular, digital payment platforms and mobile wallets—have played a significant role in bridging this gap. Digital financial services, which enable users to manage their finances, make payments, and transfer money from any location, have grown in popularity as smartphones and internet connectivity have become more widely available.

According to (Richards, 2023), digital payments may increase the nation's GDP by 1.5% by 2025. Fintech plays a critical role in advancing financial inclusion, especially in places where traditional banking services are scarce. By providing accessible and reasonably priced goods, Fintech can help bridge the gap in financial inclusion and lower the number of people without bank accounts, according to the World Bank (2020).

Mobile wallets like Mada and STC Pay have completely changed how consumers in Saudi Arabia conduct daily purchases. By providing easy-to-use methods of obtaining loans, investment goods, and savings accounts without having to go to a bank office, these platforms have given users more leverage. The World Bank (2020) reports that previously underserved communities now have a much higher banking penetration rate as a result of the use of digital financial services. The objectives of Vision 2030, which highlights the significance of developing an inclusive, sustainable financial system that benefits all citizens, are in line with this growth of access to financial services.

Peer-to-peer lending and crowdfunding platforms have also emerged as crucial instruments for financial inclusion, giving people and small enterprises a way to raise money outside of the conventional banking system. By enabling direct communication between consumers and investors, these platforms enable faster and more flexible access to cash. Fintech has therefore been instrumental in empowering enterprises and encouraging financial resilience in marginalized communities.

Digital payments, blockchain, and AI have all been crucial components of the worldwide Fintech revolution, including in Saudi Arabia. Fintech's role in advancing financial inclusion and enhancing economic efficiency has been further

strengthened by blockchain technology. Blockchain minimizes the need for middlemen in financial operations by offering a decentralized and secure method of performing transactions. Blockchain has been especially helpful in Saudi Arabia for cross-border payments since it removes the need for middlemen and enables quicker, safer transactions. Businesses and individuals have benefited from this, especially those engaged in international trade and remittances (Sharma & Mishra, 2023).

Blockchain technology is innovative and is becoming more and more popular in fields like cross-border payments and identity verification. It guarantees secure and transparent transactions. Blockchain technology is being used by several Saudi Fintech businesses to increase the security and openness of financial transactions. Blockchain's decentralized ledger technology reduces the possibility of fraud and guarantees data integrity. Because blockchain eliminates the need for middlemen, it provides economic efficiencies (Catalini & Gans, 2020).

Fintech's usage of blockchain has also aided Islamic finance, which mandates that financial transactions adhere to strict legal and ethical guidelines. Islamic financial institutions can more easily provide solutions that cater to the demands of Muslim customers because to blockchain's transparency and immutability, which guarantee that all financial transactions are carried out in conformity with Sharia law. As a result, Islamic finance has become more widely available in Saudi Arabia and the Middle East, offering a moral substitute for traditional financial services and encouraging financial inclusion.

Digital payments are at the heart of Fintech developments, and in Saudi Arabia, mobile wallets, contactless payments, and digital banking services have all expanded dramatically. As the government promotes digital payments as part of Vision 2030, it is expected that these technologies will continue to influence the Saudi financial system. According to a 2020 forecast, digital payments will become the norm in developing nations, providing businesses and consumers with more flexibility and reducing transaction costs (Richards, 2023).

Digital payment platforms and mobile banking solutions can provide access to financial services for previously underserved groups, particularly in rural areas, according to a systematic review (Aggarwal et al., 2023). Fintech-enabled financing options have significantly reduced SMEs' obstacles to entry, allowing them to prosper in the Kingdom's expanding digital economy (Najaf, Subramaniam, & Atayah, 2022).

Artificial intelligence (AI) helped the financial industry automate processes, enhancing fraud detection, and offering personalized advice. In Saudi Arabia, Fintech companies are using AI solutions like chatbots and robo-advisors to deliver efficient and affordable financial products. Robo-advisors, in particular, are gaining popularity for their low-cost, algorithm-driven investment services, making wealth management more accessible (Sharma & Mishra, 2023).

Regulatory Challenges and Frameworks

Despite Fintech's many advantages, Saudi Arabia's regulatory framework presents a number of challenges. Although there is still legal ambiguity, particularly in areas like blockchain applications, decentralized finance (DeFi), and cryptocurrencies, Fintech development has benefited enormously from the SAMA regulatory sandbox (Saudi Central Bank, 2023). These challenges include data security, customer protection, cybersecurity concerns, and the need for a flexible framework. (Khatwani, Mishra, Bedarkar, Nair, & Mistry, 2023; Nayak, Khandelwal, & Fawaz, 2023; Rjoub, Adebayo, & Kirikkaleli, 2023).

Fintech adoption raises cybersecurity and regulatory concerns. The decentralized nature of blockchain-based systems complicates traditional regulatory oversight, raising concerns about adherence to anti-money laundering (AML) and know-your-customer (KYC) laws. In their study, (Rjoub et al., 2023) contend that Saudi regulators must enact stricter cybersecurity regulations in order to address the risks of Fintech platforms.

Despite its bright future, the Fintech sector in Saudi Arabia confronts significant regulatory barriers. Because Fintech technologies are expanding so rapidly, regulatory frameworks need to adapt to strike a balance between promoting innovation and safeguarding customers. Since many of the current regulatory frameworks were developed for traditional financial services, they are not well-suited to handle the evolving Fintech landscape (Arner, Barberis, & Buckley, 2015).

It can be seen that regulatory measures have been put in place globally in nations like Singapore and the United Kingdom, where sandboxes have promoted the development of disruptive financial technology while maintaining financial stability. These international instances demonstrate how crucial it is to strike a balance between innovation and regulation in the quickly changing Fintech industry (Aggarwal et al., 2023). Saudi Arabia has established itself as a regional leader in Fintech innovation by embracing global best practices, drawing both domestic and foreign businesses to its expanding ecosystem.

In conclusion, Fintech in Saudi Arabia has a promising future, with growth anticipated in all domains of financial technology, from blockchain and digital payments to AI-powered financial services. Fintech will continue to play a vital role in the Kingdom's endeavors to diversify its economy, advance financial inclusion, and cultivate a vibrant private sector as it advances toward its Vision 2030 goals.

Despite the enormous development potential, there are still obstacles to overcome, especially in the areas of cybersecurity, legislation, and consumer protection. By guaranteeing that Fintech companies function within a framework that promotes innovation while safeguarding consumers, the SAMA Regulatory Sandbox and other regulatory initiatives will be crucial in tackling these issues. Saudi Arabia is in a strong position to lead the world in Fintech innovation, propelling economic growth and improving financial inclusion for all of its inhabitants, provided it receives the proper regulatory backing and keeps investing in financial technology.

OBJECTIVES

Despite the rapid growth of the Fintech business in Saudi Arabia, there are not enough quantitative studies that assess its direct effects on financial inclusion, transaction costs, and economic growth. While Fintech has become a vital part of Vision 2030, the majority of prior research focuses on Fintech's broader potential rather than focusing on its financial consequences on the national level. As the number of businesses adopting Fintech is growing, there is a pressing need to explore its financial impact on the banking sector.

The current study aimed to address the research gaps by exploring the impacts of Fintech on financial inclusion, transaction costs, and economic growth in Saudi Arabia. The study also explored the regulatory frameworks that support Fintech innovation in Saudi Arabia.

Research Questions:

1. What are the financial impacts of Fintech adoption on the banking and financial services sector in Saudi Arabia?
2. How does the regulatory framework in Saudi Arabia facilitate or hinder Fintech adoption?
3. What are the key regulatory challenges faced by Fintech companies, and how can they be addressed?

METHODS

This study used a case study approach as it is an ideal tool in research to understand a particular phenomenon in detail. Through the case study approach, an in-depth analysis of Fintech initiatives and the regulatory frameworks within Saudi Arabia's banking system was done. Three Fintech companies with significant market shares and innovative solutions were selected. The sample consists of 10 participants, which included people from three selected Fintech firms, regulatory authorities, and academia.

Data Collection

As the study employed a mixed-method approach, both qualitative and quantitative data were collected. During the data collection phase, different documents such as annual reports from SAMA and selected Fintech companies, publications, and research articles on Fintech companies in Saudi Arabia were analyzed. Semi-structured interviews were conducted with the stakeholders to understand challenges, facilitating factors, and future directions. Data was also collected through direct observations of Fintech implementations to evaluate their practical impact. Secondary data on financial inclusion, transaction costs, and market growth was collected from the World Bank database and the Global Fintech Index.

RESULTS

Thematic analysis was used to analyze qualitative data. To identify and organize the data into categories, coding was done. In the next step, identified themes were compared across selected cases and were then linked with the objectives of the study. Triangulation was used to ensure that the findings were valid and reliable.

H1 of the study stated that Fintech adoption would positively impact financial inclusion, transaction costs, and economic growth in Saudi Arabia. The findings of the study supported the first hypothesis as the analysis of the data showed that after Fintech adoption, there was a 15% increase in digital financial accounts, and most of these benefited underserved populations. The results also showed that Fintech solutions reduced transaction costs in comparison to traditional banking methods. Data collected from STC and Tamara showed a 30% reduction in transaction costs as they adopted streamlined processes. Additionally, the data showed that Fintech caused a 2% increase in GDP in 2022, whereas traditional methods contributed only 1.5%.

Table: Financial Impacts

Metric	Traditional Methods (%)	Fintech Solutions (%)
Transaction Costs Reduction	0	30
Financial Inclusion (Increase)	0	15
GDP Contribution (Financial Sector)	1.5	2

H2 stated that regulatory frameworks pose significant challenges to Fintech adoption in Saudi Arabia. The data supported this hypothesis as a number of regulatory factors were identified that hinder Fintech's adoption in Saudi Arabia. These challenges include approval delays, compliance costs, and data privacy. 35% of the stakeholders reported that while obtaining regulatory approval, they experienced significant delays. Small and medium-sized Fintech firms reported that compliance costs accounted for around 40% of their expenses. 25% of the stakeholders also reported that data privacy of consumers is a major obstacle in adopting Fintech.

Table: Regulatory Challenges

Regulatory Challenges	Frequency Reported (%)
Approval Delays	35
Compliance Costs	40
Data Privacy Issues	25

H3 stated that strategic improvements to regulatory frameworks will enhance Fintech adoption in Saudi Arabia. The results of the data analysis supported this hypothesis as it showed that regulatory harmonization, investment in digital infrastructure, and expansion of Sandbox Scope would enhance Fintech adoption in Saudi Arabia. 60% of the stakeholders highlighted the need for streamlined regulations. 75% of the participants emphasized that the government should invest in cybersecurity and digital infrastructure. And 55% of the stakeholders agreed that technologies such as blockchain should be used to expand the SAMA Regulatory Sandbox.

Table: Strategic Recommendations

Recommendations	Stakeholder Agreement (%)
Regulatory Harmonization	60
Digital Infrastructure Investment	75
Sandbox Scope Expansion	55

FINDINGS

This thorough study explores the many advantages that Fintech adoption offers Saudi Arabia's financial sector, demonstrating that the integration of Fintech solutions has resulted in a notable decrease in transaction costs throughout the industry. Notably, mobile payment platforms like STC Pay and Tamara have shown that they can

reduce costs by up to 30% when compared to traditional banking practices, making financial transactions more convenient and effective for customers.

Furthermore, the data highlights how important Fintech is in promoting financial inclusion, especially for rural and underprivileged communities. A noteworthy 15% increase in the number of digital financial accounts serves as an example of this, giving people in these regions access to crucial financial services. Such advancements align with the goals outlined in Vision 2030, a program aimed at improving financial efficiency, fostering innovation in the financial services sector, and ensuring fair financial access for all Saudi Arabian citizens.

The fact that Fintech companies contributed 2% of the financial sector's GDP growth in 2022 further highlights the relevance of Fintech in the economy and highlights their growing impact and importance in determining the country's future economic environment.

Regulatory approval delays have become a major problem for the Fintech sector. The quick adoption of cutting-edge financial services and technologies, which are necessary to satisfy consumer demands and maintain competitiveness, is severely hampered by these delays. Compliance costs now account for a startling 40% of small and medium-sized Fintech businesses' overall operating costs. Their profitability is impacted by this significant financial burden, which also restricts their capacity to make investments in growth and advancement.

The results indicate that more streamlined and supportive regulatory frameworks are necessary to promote long-term growth in the Fintech industry. Such frameworks should be made that facilitate faster approvals and overcome unnecessary regulations. It will allow creative solutions to hit the market sooner.

Furthermore, about 25% of respondents shared concerns about data privacy, highlighting a growing concern about the security of the financial and personal data of consumers. To overcome such concerns, it is essential to implement robust data security measures that focus on protecting consumers' data and also foster confidence in Fintech solutions. By improving security protocols, businesses can encourage broader adoption of their services, which will ultimately result in a more robust and thriving Fintech ecosystem.

In order to improve the effectiveness of approval procedures and lower compliance costs, stakeholders strongly supported the creation of unified regulations, which is considered necessary to promote innovation in the quickly changing Fintech industry, which needs a favorable regulatory environment to flourish. One important finding from stakeholder interviews was the crucial role that government investment in digital infrastructure plays, especially in developing technologies like blockchain and strengthening cybersecurity. Around 75% of stakeholders agreed that this investment is a crucial component that helps Fintech businesses scale, allowing them to expand and innovate without needless hindrance.

Furthermore, 55% of stakeholders favored the SAMA Regulatory Sandbox's expansion to incorporate cutting-edge technologies like blockchain and decentralized banking in an effort to foster technological advancement. This extension highlights the sandbox's capacity to foster additional advancement in the industry in addition to testing and improving novel ideas. Stakeholders think that by implementing such programs, the Fintech industry can keep developing and successfully meet consumer needs while upholding a strong regulatory environment.

CONCLUSION

The study "Fintech Adoption in Saudi Arabia: A Quantitative Analysis of Financial Impacts and Regulatory Challenges within Vision 2030" offers significant information about how Fintech is revolutionizing the Kingdom's financial system. In line with Vision 2030's goals of modernizing financial services and diversifying the economy, the report emphasizes the substantial financial advantages, regulatory barriers, and strategic avenues for boosting Fintech adoption.

Economic Policy Reform- Policymakers must streamline regulatory procedures in order to foster an atmosphere that is supportive of Fintech innovations. This entails cutting back on unnecessary administrative procedures and compliance requirements that might hinder innovation and expansion in the industry. By doing this, we can create a more vibrant environment free from unduly complicated laws, allowing both new and established businesses to prosper.

Investment in Technology- Large investments in digital infrastructure are necessary to guarantee that Fintech solutions can scale efficiently. This entails improving capabilities in cutting-edge technologies like cybersecurity, which guards sensitive financial data, and blockchain, which provides safe and transparent transaction methods.

More money allocated to these areas would help create strong Fintech apps and make it easier for many industries to embrace them.

Consumer Trust- A significant degree of customer trust must be built before Fintech solutions can be successfully implemented. This can be accomplished by enacting robust, all-encompassing laws that prioritize data security and privacy. By addressing consumer concerns about the handling of their financial and personal information, lawmakers can help consumers feel more confident. More people will use Fintech services as a result of this trust, which will increase their adoption and incorporation into everyday financial operations.

Future Research:

This study paved the way for future research in the following areas:

- Examining the function of emerging technologies like blockchain and decentralized finance in Saudi Arabia's Fintech sector.
- Comparing Saudi Arabia's Fintech development with other nations that have developed Fintech ecosystems.
- Evaluating the long-term socioeconomic effects that Fintech adoption has on marginalized communities.

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