



THE IMPACT OF FINANCIAL TECHNOLOGY EXPENDITURES ON ATTRACTING DEPOSITS AND INVESTING FUNDS: AN APPLIED STUDY ON JORDANIAN ISLAMIC BANKS

Shireen Mahmoud Alali¹
Ali A. Alzoubi²
Mohyi Aldin AbuAlhoul³
George Shawaqfeh⁴

ABSTRACT

Purpose: The study aims to demonstrate the impact of financial technology expenses on attracting deposits and utilizing funds within Jordanian Islamic banks.

Method/design/approach: To achieve this, the researchers used a descriptive-analytical approach to describe the phenomenon of financial technology expenses from 2016 to 2022, and to analyze its effect on deposit attraction and fund utilization in the relevant banks.

Results and conclusion: The study's results indicated a tangible and positive impact of financial technology expenses on deposit attraction in Jordanian Islamic banks during the studied period. Additionally, the results also demonstrate a positive effect of financial technology expenses on the volume of funding and investment in Jordanian Islamic banks during the studied period. Statistical analysis revealed that these results have statistical significance, suggesting that financial technology expenses have a strong and tangible impact on deposit attraction and fund utilization in Jordanian Islamic banks.

Research implications: The study results suggest that upcoming research could delve into the policy implications, for bodies to back fin.tech integration in Jordan's banking industry. Subsequent inquiries could examine customer behavior risk management approaches and the lasting viability of fin.tech investments. Moreover conducting studies across regions and pinpointing future research avenues are essential to enhance comprehension of how fin.tech influences deposit attraction and fund utilization, in Islamic banks.

Originality/value: The Significance of this research lie, in its investigation of the effects of fintech spending on banks in Jordan shedding light on the merging realms of Islamic finance and contemporary technology. The results offer advice for decision makers, banking leaders and scholars striving to boost the efficiency and competitiveness of banking, in Jordan and other regions.

Keywords: Financial Technology, Deposit Attraction, Financial Technology Expenses, Fund Utilization.

O IMPACTO DOS GASTOS COM TECNOLOGIA FINANCEIRA NA ATRAÇÃO DE DEPÓSITOS E FUNDOS DE INVESTIMENTO - UM ESTUDO APLICADO AOS BANCOS ISLÂMICOS DA JORDÂNIA

RESUMO

Objetivo: O estudo visa demonstrar o impacto das despesas com tecnologia financeira na atração de depósitos e na utilização de fundos nos bancos islâmicos da Jordânia.

¹ Department of Islamic Banking, Ajloun National University, Jordan. E-mail: shreen.ali@anu.edu.jo
Orcid: <https://orcid.org/0009-0000-0596-5491>

² Department of Accounting, Ajloun National University, Jordan. E-mail: ali.azoubi@anu.edu.jo
Orcid: <https://orcid.org/0000-0002-8336-9588>

³ Department of Islamic Banking, Ajloun National University, Jordan. E-mail: mohialden@anu.edu.jo
Orcid: <https://orcid.org/0009-0009-1965-8500>

⁴ Financial Technology and Banking Department, Ajloun National University, Jordan.
E-mail: g.shawaqfeh@anu.edu.jo Orcid: <https://orcid.org/0000-0003-1344-0331>



Método/desenho/abordagem: Para conseguir isso, os pesquisadores usaram uma abordagem descritiva-analítica para descrever o fenômeno das despesas com tecnologia financeira de 2016 a 2022 e para analisar seu efeito na atração de depósitos e na utilização de fundos nos bancos relevantes.

Resultados e conclusão: Os resultados do estudo indicaram um impacto tangível e positivo das despesas com tecnologia financeira na atração de depósitos nos bancos islâmicos jordanianos durante o período estudado. Além disso, os resultados também demonstram um efeito positivo das despesas com tecnologia financeira no volume de financiamento e investimento nos bancos islâmicos jordanianos durante o período estudado. A análise estatística revelou que estes resultados têm significância estatística, sugerindo que as despesas com tecnologia financeira têm um impacto forte e tangível na atração de depósitos e na utilização de fundos nos bancos islâmicos da Jordânia.

Implicações da pesquisa: Os resultados do estudo sugerem que pesquisas futuras poderiam aprofundar as implicações políticas para que os órgãos apoiem a integração da tecnologia financeira no setor bancário da Jordânia. As investigações subsequentes poderiam examinar as abordagens de gestão de riscos comportamentais do cliente e a viabilidade duradoura dos investimentos em fin.tech. Além disso, a realização de estudos em todas as regiões e a identificação de caminhos de investigação futuros são essenciais para melhorar a compreensão de como a tecnologia financeira influencia a atração de depósitos e a utilização de fundos nos bancos islâmicos.

Originalidade/valor: A importância desta investigação reside na sua investigação dos efeitos dos gastos com fintech nos bancos na Jordânia, lançando luz sobre a fusão dos domínios das finanças islâmicas e da tecnologia contemporânea. Os resultados oferecem aconselhamento aos decisores, líderes bancários e académicos que se esforçam por aumentar a eficiência e a competitividade do sector bancário, na Jordânia e noutras regiões.

Palavras-chave: Tecnologia Financeira, Atração de Depósitos, Despesas de Tecnologia Financeira, Utilização de Fundos.

EL IMPACTO DE LOS GASTOS EN TECNOLOGÍA FINANCIERA EN LA ATRACCIÓN DE DEPÓSITOS Y FONDOS DE INVERSIÓN: UN ESTUDIO APLICADO SOBRE LOS BANCOS ISLÁMICOS JORDANOS

RESUMEN

Propósito: El estudio tiene como objetivo demostrar el impacto de los gastos en tecnología financiera en la atracción de depósitos y la utilización de fondos dentro de los bancos islámicos jordanos.

Método/diseño/enfoque: Para lograr esto, los investigadores utilizaron un enfoque analítico-descriptivo para describir el fenómeno de los gastos en tecnología financiera de 2016 a 2022 y analizar su efecto en la atracción de depósitos y la utilización de fondos en los bancos relevantes.

Resultados y conclusión: Los resultados del estudio indicaron un impacto tangible y positivo de los gastos en tecnología financiera en la atracción de depósitos en los bancos islámicos jordanos durante el período estudiado. Además, los resultados también demuestran un efecto positivo de los gastos en tecnología financiera sobre el volumen de financiación e inversión en los bancos islámicos jordanos durante el período estudiado. El análisis estadístico reveló que estos resultados tienen importancia estadística, lo que sugiere que los gastos en tecnología financiera tienen un impacto fuerte y tangible en la atracción de depósitos y la utilización de fondos en los bancos islámicos jordanos.

Implicaciones de la investigación: Los resultados del estudio sugieren que las próximas investigaciones podrían profundizar en las implicaciones políticas para que los organismos respalden la integración de la tecnología financiera en la industria bancaria de Jordania. Investigaciones posteriores podrían examinar los enfoques de gestión de riesgos del comportamiento del cliente y la viabilidad duradera de las inversiones en tecnología financiera. Además, realizar estudios en todas las regiones e identificar futuras vías de investigación es esencial para mejorar la comprensión de cómo la tecnología financiera influye en la atracción de depósitos y la utilización de fondos en los bancos islámicos.

Originalidad/valor: La importancia de esta investigación radica en su investigación de los efectos del gasto en tecnología financiera en los bancos de Jordania, que arroja luz sobre la fusión de los ámbitos de las finanzas islámicas y la tecnología contemporánea. Los resultados ofrecen consejos para los responsables de la toma de decisiones, los líderes bancarios y los académicos que se esfuerzan por impulsar la eficiencia y la competitividad de la banca en Jordania y otras regiones.



Palabras clave: Tecnología Financiera, Atracción de Depósitos, Gastos en Tecnología Financiera, Utilización de Fondos.

RGSA adota a Licença de Atribuição CC BY do Creative Commons (<https://creativecommons.org/licenses/by/4.0/>).



1 INTRODUCTION

In an era of rapid transformations and swift innovations in the financial business world, financial technology (fintech) has become pivotal in updating and advancing the banking sector. This technology, which merges technological innovation with financial services, significantly contributes to enhancing the efficiency of banking operations and saving time and effort for customers. The growing interest in the impact of this technology on deposit attraction and fund utilization, especially in Islamic banks distinguished by their unique financial systems and commitment to Islamic Sharia principles, is notable.

Financial technology forms a fundamental cornerstone for banking service development and improving customer experiences. These technologies encompass a wide range of innovations, such as smart banking applications, electronic payments, big data analytics, and advanced security technologies. These tools achieve increased effectiveness in banking operations and foster trust between banks and their clientele.

Banks play a crucial role in boosting the economy and stimulating business and project growth. Attracting deposits and utilizing funds stand as primary responsibilities of banks, reflecting the strength and confidence customers have in the banking system. These operations necessitate financial technology to ensure operational effectiveness and speed, thereby enhancing the attraction of more deposits and maximizing bank investments.

Islamic banks have witnessed remarkable progress in utilizing financial technology, aiming to enhance customer experiences and provide advanced financial services in line with Islamic Sharia principles. The integration of technology into Islamic banks reflects their responsiveness to contemporary requirements and market challenges, paving the way for innovative methods of fund utilization and deposit attraction.

The expenditure on technology in Islamic banks includes updating payment systems, developing digital services, and enhancing financial transaction security. This expenditure enhances the competitive capacity of banks, seeking to attract more deposits and better utilize funds.



Amid modern economic and technological transformations, financial technology appears to play a fundamental role in making Islamic banks in Jordan more effective and competitive. Through investment in this technology and updating their systems, they aim to achieve sustainable growth in deposit attraction and fund utilization, thereby bolstering their role in supporting the local economy and fostering sustainable development.

2 PROBLEM STATEMENT

Islamic banks in Jordan have shown an increasing interest in adopting financial technology as a means to enhance their services and achieve competitive advantage in the financial services market. With the rapid technological innovation in the banking sector, questions arise about how this adoption affects the ability of Islamic banks to attract deposits and improve capital deployment. Therefore, the main problem of this study is to explore and analyze the "Impact of Financial Technology Expenses on Deposit Attraction and Capital Deployment in Jordanian Islamic Banks." The study aims to answer the following questions:

First Question: What is the impact of financial technology expenses on deposit attraction in Jordanian Islamic banks?

Second Question: What is the impact of financial technology expenses on capital deployment in Jordanian Islamic banks?

3 STUDY OBJECTIVES

The study aims to highlights the impact of financial technology expenses on deposit attraction in Jordanian Islamic banks.

Elucidate the impact of financial technology expenses on capital deployment in Jordanian Islamic banks.

4 FINANCIAL TECHNOLOGY EXPENDITURES

The technological revolution brought about many fundamental changes in the structure of the economy, as it made scientific knowledge a basic production element that represents the direct productive force in determining human control over nature. This knowledge included three basic areas: science, technology, and production. It also became the basis for modern



industry with the entry of the electronic era, which has become representing the new aspect of life [i].

The term “Fintech” refers to the intersection of finance and technology. It encompasses a wide range of technological innovations and applications that aim to improve and automate the delivery of financial services [ii].

Also, [iii] indicated that the term financial technology also refers to any emerging institution that enters the financial services sector in order to propose innovative technological solutions to its customers, in an attempt to seize market shares at the expense of traditional institutions.

As well as, the concept of financial technology refers to innovative financial services or products that are provided by technology, as it constitutes intersecting services between the financial services and technology sectors, by focusing on innovation and development of products and services provided by the traditional financial services sector [iv].

The fintech sector is witnessing rapid developments that support continued progress in areas such as open banking, quantum computing, and the integration of advanced technologies, as these developments contribute to shaping the trajectory of financial services, leading to enhanced accessibility, efficiency, and inclusivity in the industry [v].

In addition, the fintech sector is adding new products to its offering, on its own or through partnerships and platform approaches, allowing cross-selling to existing customers and giving them the ability to be more attractive to new customers [vi].

Fintech companies utilize technology to improve and optimize different facets of financial operations, spanning banking, investment, lending, payments, and more [vii].

However, banks cannot continue their multiple activities unless they have the funds necessary to finance both their fixed and current assets, as banks differ from industrial and commercial companies and service providers in the nature of their work and how they use those sources to finance their activity. Therefore, banks make every effort to evaluate sources of financing based on various factors such as cost, risk, returns, time and management involvement, in addition to financial obligations such as interest and installments [viii].

Fintech affected by a group of factors that are distributed at different levels, including institutions, government policies, competitors, supply chains, and institutes; these factors require the development of appropriate policies to reduce negative effects [ix].

According to [x], the management of various financial resources in banks, including technological ones, depends on making financial decisions that ensure the achievement of goals



and sustainability. However, such decisions must be taken with caution in accordance with the banks' strategic objectives and financial conditions.

On the other hand, there are some key aspects of fintech include blockchain, the use of blockchain technology supports many financial technology innovations, providing decentralized and secure alternatives to traditional currencies. Blockchain technology has become one of the most prominent and promising technologies as a result of providing almost unlimited applications in various fields. It also allows for the dispensing of intermediary third parties due to public confidence in the ease of using it, it also helps improve and verify transactions ^[xi].

^[xii] indicated that fintech includes new startups, existing technology and e-commerce companies, as well as existing financial companies. Fintech seeks innovation and economic growth by transforming traditional financial services, but at the same time it also poses a major challenge to the post-financial crisis regulatory model. As fintech becomes increasingly important, financial regulators have been forced to consider how to balance traditional regulatory objectives of financial stability and consumer protection with growth and innovation objectives.

The Fintech services sector also focuses on transforming the provision of financial services by developing new business models, processes, and products. These modern services help reduce transaction costs, making it easier to store, search, track, copy, and verify information. It also contributes to significantly reducing the fixed costs of providing financial services, in addition to providing access to data on current and potential customers as alternative sources of information for assessing creditworthiness, which reduces reliance on credit assessments, income, and guarantees ^[xiii].

Thus, the evolution of information and communications technology has significantly transformed the landscape of services offered by banks, particularly in the banking sector. The remarkable growth in technology has given rise to dynamic transaction channels, with customers now utilizing mobile devices to perform various banking activities such as checking account balances, making payments, requesting credits, and engaging in transactions. Mobile banking has emerged as a pivotal model, reshaping the way customers interact with and access financial services ^[xiv].



5 ATTRACTING DEPOSIT

Deposits are among the most important resources that banks obtain from their customers, as they rely on them to carry out their various activities that bring them profit, the most important of which is bank credit, which makes banks rush to mobilize more savings in the form of deposits of various types, in order to ensure their continuity and ensure their place in the market [^{xv}].

Deposits represent everything that individuals or entities place in banks on a temporary, short or long basis, for safekeeping or employment. They are made by agreement between the bank and the depositor, whereby the customer deposits an amount of money with the bank, and the bank is obligated to return this amount upon request or for a specific period, along with paying interest on it [^{xvi}].

However, the term "attracting deposits" refers to the strategies and efforts used by banks and financial institutions to attract and encourage individuals and companies to deposit their money with them, as it constitutes an essential part of the activity of banks and financial institutions, and is also a stable source of funding for these institutions, allowing them to use it to provide loans and financing to customers and for investment. In different activities [^{xvii}].

Deposits in banking practice are listed as follows: required deposits; term deposits; Savings deposits. The required deposits are characterized by several characteristics, including: the possibility of withdrawing funds in any amount and at any time; Unlimited term deposits; Pay a small amount of interest etc. Deposits in commercial banks are largely required deposits, and this is usually the cheapest source of a bank's resources [^{xviii}].

On the other hand, the deficit in deposits and the increased risks of banking activity have also caused significant restrictions on lending to institutions, which under these circumstances are forced to withdraw resources to support their current operations [^{xix}].

Also, [^{xx}] showed that attracting and growing deposits equals sales growth and ultimately improves the performance of managers in banks. Banks and financial institutions follow tools to attract deposits from customers, and advertising is one of these tools, as advertising affects consumer behaviors better. Advertising objectives consist of relationship objectives and sales objectives, and banks need strategic planning to reach these objectives with high efficiency and effectiveness.

Attracting deposits is also a challenge due to the risk of depositors' funds being exposed to loss, which prompted banks to design deposit insurance systems to reduce or eliminate these risks. Insurance systems provide safety for the deposits of households and small business



institutions, which may represent life savings or vital transaction balances, which enables families and companies to conduct their business with some guarantee that their funds are safe, which supports the stability of economic operations ^[xxi].

Therefore, deposit attraction therefore involves a combination of competitive offers, technology-based convenience, excellent customer service, and strategic marketing to entice individuals and businesses to entrust their funds to a specific financial institution ^[xxii].

6 INVESTING FUNDS

Over the past decade, investing has attracted an increasing amount of investor capital by promising targeted financial returns and a social or environmental goal. Investing money is a strategic means that can be used to grow wealth over time, relying on careful planning and study ^[xxiii].

Investment refers to the demand, or the pursuit of extracting more money by using it and operating it in what is legitimate, as a result of optimistic expectations of investors in order to enhance their social image or reputation ^[xxiv].

According to ^[xxv], investments are subject to market risks that may result in loss of the funds invested. Bond funds are also subject to the risk that the issuer will fail to make payments on time, and that bond prices will decline due to rising interest rates or negative perceptions of the issuer's ability to make payments. Diversification does not guarantee profit or protect against loss in an unstable market.

However, the types of investments are varied, but direct investment is the most common. Direct investments are traditionally classified as alternative, and direct investments are used to develop a business, regardless of the level of development reached by a particular company ^[xxvi].

Also, ^[xxvii] showed that the main advantage of direct investment is the ability to obtain the funds necessary to implement a project aimed at developing an existing business. But, not only money is invested in the company, but also intangible resources are invested, including: consultations on the part of the investor, his relationships, knowledge and authority.

On the other hand, the performance of stock funds has received the most attention, perhaps because investors put nearly twice as much capital into these funds as they do into bond funds ^[xxviii].



Hence, the changing dynamics in the banking sector impact multiple parties including: companies facing potential changes in both sources of capital and costs of capital, regulators, and investors facing changes in their set of investment opportunities [^{xxix}].

7 PREVIOUS STUDIES

In light of the growth of the Islamic financial industry, financial technology (FinTech) appears to play a vital role in accelerating and enhancing this growth. Research by [^{xxx}] highlights the importance of enhancing the ecosystem of Islamic financial institutions using Shariah-compliant financial technology tools. Additionally, researchers [^{xxxi}] indicate that financial technology has become fundamental for the future growth of the financial industry. The global economy uses technology as an integral part of its economies, and [^{xxxii}] emphasize the importance of technology in all industries, including financial services and banking.

According to studies, Islamic banking embraces technology to facilitate diversified services for its users, including savings accounts, payment services, transfers, insurance, financing, and credit. Researchers [^{xxxiii}] point out that adopting technology in Islamic banking improves compliance and enhances interest in Islamic finance. Digitizing Islamic financing instruments is also preferred to maintain market share and enhance performance. Investment in financial technology has a positive impact on the development of Islamic finance and its competitive capabilities [^{xxxiv}].

The provision of financial technology enables institutions and individuals to access Sharia-compliant services, enhancing transparency and transaction efficiency. Research by [^{xxxv}] and [^{xxxvi}] indicates that utilizing technology saves time and costs for customers, facilitating access to financial services through digital channels. Additionally, a study by [^{xxxvii}] highlights that financial technology also offers solutions to payment delays, providing faster and more cost-effective methods. For instance, electronic payment gateways like 'payfort' provide a specialized payment service called 'stsart' for startups, ensuring security and swift payments. The growth of financial technology contributes to increasing the customer base, thus enhancing financial inclusion by introducing new payment forms.

Researchers [^{xxxviii}] emphasize the importance of information technology in developing sustainable financial services and products. Additional benefits can be attained by combining financial technology with Islamic banking, such as universal access and improving financing operations in general. Utilizing technology to enhance Islamic finance displays benefits in innovative operations and continuous improvement. The use of financial technology in Islamic



banks represents a pivotal advancement in enhancing banking services and achieving competitive excellence. Researchers [xxxix] point out that financial technology provides immense potential to enhance financing through its innovative techniques, enhancing the ability of Islamic banks to offer new and efficient banking services to customers.

Looking at global experiences, the impact of technological innovation on developing the financial services sector has been highlighted. In the context of research conducted by [xl], Malaysia was identified as one of the leading countries in adopting financial technology, launching the first Islamic investment platform in 2015 involving six Islamic banks. This demonstrates how financial technology can be a key factor in enhancing economic integration and developmental capabilities.

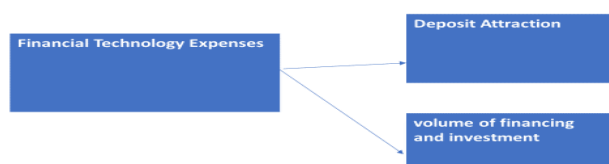
Additionally, researchers [xli] and [xlii] emphasize that financial technology contributes to achieving additional benefits in Islamic banking by reducing costs and enhancing transparency. The research also demonstrates that digital operations and big data analytics can enhance efficiency in Islamic banking procedures.

In this context, the combination of financial technology and Islamic banking exhibits various benefits, including universal access to financial services, improved security, transparency in transactions, and reduced operational costs. [xliii] recommends that the Islamic banking sector benefits from innovation in financial technology to align with customers' needs and aspirations, emphasizing the importance of digital transformation for achieving sustainable development in this critical sector.

8 THE MATERIALS AND METHOD

Figure 1

Study Model: To achieve the study's objectives, the following model was used





Hypotheses: The study is based on testing the following hypotheses:

Primary Hypothesis 1: There is no statistically significant impact ($\alpha \geq 0.05$) of financial technology expenses on deposit attraction in Jordanian Islamic banks during the period (2016-2022).

Primary Hypothesis 2: There is no statistically significant impact ($\alpha \geq 0.05$) of financial technology expenses on the volume of financing and investment in Jordanian Islamic banks during the period (2016-2022).

9 STUDY POPULATION AND SAMPLE

The study population and its sample include all Jordanian Islamic banks during the period from 2016 to 2022, totaling 3 banks: Jordan Islamic Bank, Arab Islamic International Bank, and Safwa Islamic Bank, according to the official website of the Amman Stock Exchange (www.ase.com.jo).

Statistical Processing Methods: Statistical analysis of the study data was conducted using the software "Eviews." The following statistical methods were employed:

- Descriptive statistics including means, standard deviations, kurtosis, and skewness to describe the study variables and confirm their normal distribution;
- Hausman test to determine the appropriate regression model;
- Multicollinearity tests to verify the absence of multicollinearity;
- Autocorrelation test to ensure no autocorrelation phenomenon;
- Regression equation application to test study hypotheses and assess the impact of the independent variable on the dependent variables.

10 RESULTS AND DISCUSSION

The description of study variables will entail extracting the minimum and maximum values, mean values, and standard deviations for each study variable throughout the study period.



Table 1

Descriptive statistics of study variables during the financial period (2016-2020)

YEAR	FINANCIAL TECHNOLOGY EXPENSES		DEPOSITS ATTRACTION		FUNDING AND INVESTMENT VOLUME	
	MEAN	STANDARD DEVIATION	MEAN	STANDARD DEVIATION	MEAN	STANDARD DEVIATION
2016	1664086.7	827211.5	676855557.7	551649385.6	446271256.0	768788098.5
2017	1967137.7	934927.1	653335229.3	507969567.7	500240632.0	862421863.6
2018	2404516.7	1300544.0	631950339.3	471112528.7	546067702.7	941184195.0
2019	2265645.7	1041932.4	690734584.7	513483063.9	552062846.7	951163663.5
2020	2521678.3	1094696.4	768987054.7	540855544.8	598928414.0	1031666074.9
2021	2442273.3	1075289.0	841580739.0	567168404.4	650361708.3	1119608670.7
2022	2485482.0	1057683.6	827480760.7	594863736.6	764522741.7	1316451033.1
TOTAL MEAN	2250117.2	934301.3	727274895.0	456173949.8	579779328.8	852909706.0

The table 1 indicates an increase in financial technology expenses over the years, rising from 1,664,086.7 in 2016 to 2,485,482.0 in 2022. It is noticeable that the standard deviation has also increased over time, indicating volatility in expenditure levels. Additionally, there is a slight decrease in deposit attraction, from 676,855,557.7 in 2016 to 827,480,760.7 in 2022. The overall mean demonstrates a decline over the period, but the standard deviation indicates fluctuation in the deposit volume.

Table 2

Normal distribution test

KURTOSIS	SKEWNESS	VARIABLES
-1.39	-0.33	FINANCIAL TECHNOLOGY EXPENSES
-1.32	0.08	DEPOSIT ATTRACTIONS
-1.06	0.91	FUNDING AND INVESTMENT VOLUME

The table 2 shows the tests (Skewness & Kurtosis) used to test the normal distribution for the study's data. Financial technology expenses indicate that the skewness value suggests a deviation from the normal distribution. The value of -0.33 indicates a slight left-skewedness, but it is not significant. The kurtosis value indicates the shape of the distribution's peak. The value of -1.39 suggests that the peak is somewhat flatter compared to the normal distribution.

Regarding deposit attraction: the skewness value is small (0.08), indicating the distribution is close to normal. The kurtosis value indicates a slightly peaked distribution, but it doesn't suggest a significant deviation.



The values for the size of financing and investment in skewness (0.91) indicate a right-skewedness, suggesting a longer tail to the right. As for the kurtosis value, it suggests a sharper peak compared to the normal distribution.

Overall, it appears that the distribution of financial technology expenses and the size of financing and investment are somewhat less than normal, while deposit attraction seems close to a normal distribution. These values should always be considered within the general economic and industrial context.

Estimation of Study Models To determine which of these models should be chosen and used for analysis, the Hausman test was employed. The results were as follows:"

Table 3

Results of applying the Hausman test

HYPOTHESIS	TEST	CH2	SIG	MOST ACCURATE MODEL
H01	HAUSMAN	2.610	0.470	RANDOM EFFECTS MODEL
H02	HAUSMAN	0.046	0.830	

From Table 3, it is evident that the random effects model is the most accurate in estimating the model related to the first and second hypotheses.

Autocorrelation Test Autocorrelation is defined as the presence of a relationship between consecutive random errors calculated from the estimated regression model using the least squares method. Its presence leads to some standard problems, which are not mentioned here. The test is conducted using the Durbin-Watson statistical test. It is revealed that the Durbin-Watson values are less than (3), indicating their acceptability for practical purposes. Table 4 illustrates the results of this test for all study hypotheses.

Table 4

Testing the autocorrelation problem

Hypothesis	The computed D-W value	Results
H01	0.62	There is no autocorrelation
H02	0.68	There is no autocorrelation

From Table 4, it is evident that it can be confidently stated that there is no presence of autocorrelation phenomenon, as indicated by the test across all hypotheses, proving the absence of this phenomenon.

Stationary Test (Unit Root Test) Stability in time series refers to the constancy of both the mean and the variance of series values over time. The variability (covariance) between two



time periods is solely dependent on the time gap (lag), not on the actual time when the variance is measured. The Unit Root test is applied to ascertain whether the study variables are stationary. The Levin-Lin-Chu (LLC) test is conducted to examine whether the variables contain a unit root and its suitability for panel data. If these variables contain a unit root, differencing is necessary to make them stationary. Many time series may not be stationary but might yield high values for (t, F, R²), leading to misinterpretation and misleading results. Therefore, conducting the Unit Root test is essential to examine the stability of time series (Gliem and Gliem, 2003).

The decision criterion for the LLC test regarding the existence of a unit root (i.e., non-stationarity of the time series) is if the significance level of the computed test value is greater than 0.05. The results were as presented in Table 5.

Table 5

Unit root test results for study variables

VARIABLES	CALCULATED VALUE AT LEVEL	P-VALUE	RESULTS
FINANCIALTECHNOLOGY EXPENSES	-3.73	0.000	STATIONARY AT LEVEL
DEPOSIT ATTRACTIONS	-5.25	0.000	STATIONARY AT LEVEL
FUNDING AND INVESTMENT VOLUME	-4.26	0.000	STATIONARY AT LEVEL

Table 5 displays the results of the data stability test related to the study variables using the Levin-Lin-Chu (LLC) test. It is evident that the time series data associated with all the variables in the study model were stable over time at the level, as the probability values (P-Values) for the mentioned variables did not exceed the 5% threshold. Therefore, we reject the hypothesis of the existence of a unit root, indicating the stability of these time series.

Results related to the first hypothesis: There is no statistically significant effect at the significance level ($\alpha \geq 0.05$) of financial technology expenses on deposit attraction in Jordanian Islamic banks for the time period (2015-2022).

This hypothesis was tested by applying the regression equation to study the impact of financial technology expenses on deposit attraction in Jordanian Islamic banks for the time period (2015-2022). The results are presented in Table (6).



Table 6

Results of applying the regression equation to study the impact of financial technology expenses on deposit attraction in Jordanian Islamic banks for the time period (2016-2022)

DEPENDENT VARIABLE	COEFFICIENTS				
	STATEMENT	B	STANDARD ERROR	T	STATISTICAL SIGNIFICANCE
DEPOSITS ATTRACTION	REGRESSION STABILITY	-154000000	162000000	-0.951	0.354
	FINANCIAL TECHNOLOGY EXPENSES	391.781	66.845	5.861	0.000
COEFFICIENT OF DETERMINATION (R-SQUARED)	0.644				
ADJUSTED R-SQUARED	0.625				
THE COMPUTED F-VALUE	34.352				
THE STATISTICAL SIGNIFICANCE OF THE VALUE (F)	0.000				

The results in Table 6 indicate that the coefficient of determination (R^2) reached (0.644), indicating that financial technology expenses contribute to approximately (64.4%) of the observed variation in deposit attraction. Furthermore, the results show that the value of (F) reached (34.352), which is statistically significant at the significance level ($\alpha \leq 0.05$). Therefore, it has been revealed that there is a statistically significant impact at the significance level ($\alpha \geq 0.05$) of financial technology expenses on deposit attraction in Jordanian Islamic banks for the time period (2016-2022). Consequently, the first hypothesis, which states 'there is no statistically significant effect at the significance level ($\alpha \geq 0.05$) of financial technology expenses on deposit attraction in Jordanian Islamic banks for the time period (2016-2022),' is rejected based on the established formula.

Results related to the second hypothesis: There is no statistically significant effect at the significance level ($\alpha \geq 0.05$) of financial technology expenses on the volume of funding and investment in Jordanian Islamic banks for the time period (2016-2022).

This hypothesis was tested by applying the regression equation to study the impact of financial technology expenses on the volume of funding and investment in Jordanian Islamic banks for the time period (2016-2022). The results are presented in Table (7).



Table 7

results

Dependent variable	Coefficients				
	Statement	B	Statement	T	Statement
Deposits attraction	Regression stability	-48006328.0	741000000.0	-0.06	0.95
	Financial Technology Expenses	279.0	78.5	3.55	0.00
Coefficient of determination (R-squared)	0.411				
Adjusted R-squared	0.381				
The computed F-value	13.29				
The statistical significance of the value (F)	0.00				

The results from Table (7) indicate that the coefficient of determination (R²) reached (0.411). This value signifies that financial technology expenses contribute approximately (41.1%) to the observed changes in the volume of funding and investment. Furthermore, the results show that the value of (F) reached (13.29), which is statistically significant at the significance level ($\alpha \leq 0.05$). Consequently, it has been revealed that there is a statistically significant impact at the significance level ($\alpha \geq 0.05$) of financial technology expenses on the volume of funding and investment in Jordanian Islamic banks for the time period (2016-2022). Therefore, the second hypothesis, which states 'there is no statistically significant effect at the significance level ($\alpha \geq 0.05$) of financial technology expenses on the volume of funding and investment in Jordanian Islamic banks for the time period (2016-2022),' is rejected based on the established formula.

11 CONCLUSION

The analysis of the results shows an increase in financial technology expenses over the years, with an increase in spending from 2016 to 2022. There is an increase in deposit attraction and the volume of funding and investment. However, a slight decrease in deposit attraction from 2016 to 2022 is noticeable. Statistical examination suggests that financial technology expenses and the volume of funding and investment appear slightly deviated from normal distribution, while deposit attraction seems closer to a normal distribution. The regression analysis demonstrates that financial technology expenses contribute 64.4% to deposit attraction



and 41.1% to the volume of funding and investment. These findings confirm a positive and tangible impact of financial technology expenses on deposit attraction and capital utilization in Jordanian Islamic banks from 2016 to 2022.

REFERENCES

- Ahmad, Syed Maghfoor, and Abdullah Al Mamun. 2020. Opportunities of Islamic FinTech: The Case of Bangladesh and Turkey. *CenRaPS Journal of Social Sciences* 2: 412–26.
- Ahmad, Syed Maghfoor, and Abdullah Al Mamun. 2020. Opportunities of Islamic FinTech: The Case of Bangladesh and Turkey. *CenRaPS Journal of Social Sciences* 2: 412–26.
- Aldiabat, K., Al-Gasaymeh, A., & Rashid, A. K. (2019). The effect of mobile banking application on customer interaction in the Jordanian banking industry.
- Aliwi, Abdelkarim, Mzyan, Mohammed (2022). "Islamic Financial Technology and its Role in Enhancing the Growth of Islamic Finance." *Excellence Journal for Economic and Management Research*, Volume 6, Issue 1, p. 87
- AlMomani, A. A., & Alomari, K. F. (2021). Financial Technology (FinTech) and its role in supporting the financial and banking services sector. *International Journal of Academic Research in Business and Social Sciences*, 11(8), 1793-1802.
- AlMomani, A. A., & Alomari, K. F. (2021). Financial Technology (FinTech) and its role in supporting the financial and banking services sector. *International Journal of Academic Research in Business and Social Sciences*, 11(8), 1793-1802.
- Alabina, T. A., Grentikova, I. G., & Furman, J. D. (2019). Assessment of Efficiency Attracting Resources in Commercial Bank's Deposit Operations. In *International Scientific Conference "Far East Con"(ISCFEC 2018)* (pp. 1154-1158). Atlantis Press.
- Aqaba, Sahnoon, Enas, Laouer (2022). "Financial Technology, Islamic Finance, and Islamic Banking." *Introduction to the Proceedings of the National Forum on Financial and Banking Reforms in Algeria - Reality and Expectations*, May 30 - 2022, University of Oran 02.
- Arner, D. W., Zetsche, D. A., Buckley, R. P., & Barberis, J. N. (2017). FinTech and RegTech: Enabling Innovation While Preserving Financial Stability. *Georgetown Journal of International Affairs*, 18(3), 47-58.
- Babbas, Minira, Vali, Nabilah (2020). "Islamic Banking Industry in Facing the Challenges of Financial Technology: A Case Study of Malaysia and Gulf Cooperation Council Countries." *International Journal of Pioneering Finance*, Volume 1, Issue 2, p. 45.
- Babbas, Minira, Vali, Nabilah (2020). "Islamic Banking Industry in Facing the Challenges of Financial Technology: A Case Study of Malaysia and Gulf Cooperation Council Countries." *International Journal of Pioneering Finance*, Volume 1, Issue 2, p. 45.
- Babbas, Minira, Vali, Nabilah (2020). "Islamic Banking Industry in Facing the Challenges of Financial Technology: A Case Study of Malaysia and Gulf Cooperation Council Countries." *International Journal of Pioneering Finance*, Volume 1, Issue 2, p. 45.



- Bakker, B., Garcia-Nunes, B., Lian, W., Liu, Y., Marulanda, C., Siddiq, A. & Vasilyev, D. (2023). The Rise and Impact of Fintech in Latin America. *FinTech Notes*, 2023(003).
- Berdik, D., Otoum, S., Schmidt, N., Porter, D., & Jararweh, Y. (2021). A survey on blockchain for information systems management and security. *Information Processing & Management*, 58(1), 102397.
- Bilan, Y., Rubanov, P., Vasylieva, T. A., & Lyeonov, S. (2019). The influence of industry 4.0 on financial services: Determinants of alternative finance development. *Polish Journal of Management Studies*.
- Bolton, P., Li, Y., Wang, N., & Yang, J. (2021). Dynamic banking and the value of deposits (No. w28298). National Bureau of Economic Research, USA.
- Elton, E. J., & Gruber, M. J. (2020). A review of the performance measurement of long-term mutual funds. *Financial analysts journal*, 76(3), 22-37.
- Erina, T. V., Nagumanova, R. V., & Ivanova, N. V. (2021). Financial Monitoring of Funds as A Tool for Analyzing Consumption Expenditures. *European Proceedings of Social and Behavioural Sciences*.
- Esselink, B. (2003). The evolution of localization. *The Guide from Multilingual Computing & Technology: Localization*, 14(5).
- Feyen, E., Frost, J., Gambacorta, L., Natarajan, H., & Saal, M. (2021). Fintech and the digital transformation of financial services: implications for market structure and public policy. *BIS Papers*.
- Firmansyah EA, Anwar M (2019) Islamic financial technology (Fintech): its challenges and prospect. In: *Achieving and sustaining SDGs 2018 conference: harnessing the power of frontier technology to achieve sustainable development goals*. Atlantis Press.
- Frydman, C., & Camerer, C. F. (2016). The psychology and neuroscience of financial decision making. *Trends in cognitive sciences*, 20(9), 661-675.
- Gaytan, J. C. T., Ateeq, K., Rafiuddin, A., Alzoubi, H. M., Ghazal, T. M., Ahanger, T. A., ... & Viju, G. K. (2022). Ai-based prediction of capital structure: Performance comparison of ANN SVM and LR models. *Computational intelligence and neuroscience*, 2022.
- Hakenes, H., & Schliephake, E. (2019). The deposit base–multi-banking and bank stability. *Discussion Paper Series – CRC TR 224*.
- Hasan, R., Hassan, M. K., & Aliyu, S. (2020), “Fintech and Islamic Finance: Literature Review and Research Agenda,” *International Journal of Islamic Economics and Finance (IJIEF)*, 3(1), 75-94.
- Hasan, R., Hassan, M. K., & Aliyu, S. (2020), “Fintech and Islamic Finance: Literature Review and Research Agenda,” *International Journal of Islamic Economics and Finance (IJIEF)*, 3(1), 75-94.
- Hassan, Kabir, Mustafa Raza Rabbani, and Mahmood Asad Mohd Ali. 2020. Challenges for the Islamic Finance and banking in post COVID era and the role of Fintech. *Journal of*



Economic Cooperation and Development 41: 93–116.

- Hosseini, S., & Dargazani, N. (2020). The Effect of Electronic Banking on Deposit Attraction and Market Concentration in Iran's Banking Industry. *Iranian Economic Review*, 24(2), 545-565.
- Hubarieva, I., Lebid, O., & Zuieva, O. (2017). Determining the priority sources for attracting deposits in the formation of the financial potential of banks. *Banks and Bank Systems*, 12(3), 215-227.
- Innes, C. R., & Andrieu, J. (2022). Banking on FinTech in emerging markets. This publication may be reused for noncommercial purposes if the source is cited as IFC, a member of the World Bank Group.
- Jeffers, J., Lyu, T., & Posenau, K. (2023). The risk and return of impact investing funds. Available at SSRN 3949530.
- Kwon, S., Lowry, M., & Qian, Y. (2020). Mutual fund investments in private firms. *Journal of Financial Economics*, 136(2), 407-443.
- Makhmudov, N. M., & Avazov, N. R. (2019). Investment as a source of financing. *Economy and society*, 12 (67)), 75-77.
- Malikova, D. (2020). Deposit base of Uzbekistan commercial banks. *World Scientific News*, (143), 115-126.
- Matyakubovich, R. A. (2019). Issues of expanding the deposit base of commercial banks. *RELIGACIÓN. Revista de Ciencias Sociales y Humanidades*, 4(15), 274-279.
- Paul, J., & Feliciano-Cestero, M. M. (2021). Five decades of research on foreign direct investment by MNEs: An overview and research agenda. *Journal of business research*, 124, 800-812.
- Plagge, J. & Rowley, J. (2022), The case for low-cost index-fund investing, Vanguard Research, UK.
- Rabeh, Bresh, Mohammed, Yado (2021). "The Role of Financial Technology in the Development of Islamic Finance - A Case Study of Malaysia." *The Innovation Journal*, Volume 11, Issue 1, p. 623.
- Riedl, A., & Smeets, P. (2017). Why Do Investors Hold Socially Responsible Mutual Funds. *The Journal of Finance*, 72(6).
- Tahmooresnejad, L., Shafia, M. A., & Salami, R. (2011). Identifying impact factors in technology transfer with the aim of technology localization. *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, 5(5), 531-535.
- Vives, X. (2017). The impact of FinTech on banking. *European Economy*, (2), 97-105.
- Zalan, T., & Toufaily, E. (2017). The promise of fintech in emerging markets: Not as disruptive. *Contemporary Economics*, 11(4), 415-430.



- [i] Esselink, B. (2003). The evolution of localization. *The Guide from Multilingual Computing & Technology: Localization*, 14(5).
- [ii] Vives, X. (2017). The impact of FinTech on banking. *European Economy*, (2), 97-105.
- [iii] AlMomani, A. A., & Alomari, K. F. (2021). Financial Technology (FinTech) and its role in supporting the financial and banking services sector. *International Journal of Academic Research in Business and Social Sciences*, 11(8), 1793-1802.
- [iv] Zalan, T., & Toufaily, E. (2017). The promise of fintech in emerging markets: Not as disruptive. *Contemporary Economics*, 11(4), 415-430.
- [v] Bakker, B., Garcia-Nunes, B., Lian, W., Liu, Y., Marulanda, C., Siddiq, A. & Vasilyev, D. (2023). The Rise and Impact of Fintech in Latin America. *FinTech Notes*, 2023(003).
- [vi] Feyen, E., Frost, J., Gambacorta, L., Natarajan, H., & Saal, M. (2021). Fintech and the digital transformation of financial services: implications for market structure and public policy. *BIS Papers*.
- [vii] Erina, T. V., Nagumanova, R. V., & Ivanova, N. V. (2021). Financial Monitoring of Funds as A Tool for Analyzing Consumption Expenditures. *European Proceedings of Social and Behavioural Sciences*.
- [viii] Gaytan, J. C. T., Ateeq, K., Rafiuddin, A., Alzoubi, H. M., Ghazal, T. M., Ahanger, T. A., ... & Vijju, G. K. (2022). Ai-based prediction of capital structure: Performance comparison of ANN SVM and LR models. *Computational intelligence and neuroscience*, 2022.
- [ix] Tahmooresnejad, L., Shafia, M. A., & Salami, R. (2011). Identifying impact factors in technology transfer with the aim of technology localization. *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, 5(5), 531-535.
- [x] Frydman, C., & Camerer, C. F. (2016). The psychology and neuroscience of financial decision making. *Trends in cognitive sciences*, 20(9), 661-675.
- [xi] Berdik, D., Otoum, S., Schmidt, N., Porter, D., & Jararweh, Y. (2021). A survey on blockchain for information systems management and security. *Information Processing & Management*, 58(1), 102397.
- [xii] Arner, D. W., Zetsche, D. A., Buckley, R. P., & Barberis, J. N. (2017). FinTech and RegTech: Enabling Innovation While Preserving Financial Stability. *Georgetown Journal of International Affairs*, 18(3), 47-58.
- [xiii] Innes, C. R., & Andrieu, J. (2022). Banking on FinTech in emerging markets. This publication may be reused for noncommercial purposes if the source is cited as IFC, a member of the World Bank Group.
- [xiv] Aldiabat, K., Al-Gasaymeh, A., & Rashid, A. K. (2019). The effect of mobile banking application on customer interaction in the Jordanian banking industry.
- [xv] Bolton, P., Li, Y., Wang, N., & Yang, J. (2021). Dynamic banking and the value of deposits (No. w28298). National Bureau of Economic Research, USA.
- [xvi] Hakenes, H., & Schliephake, E. (2019). The deposit base—multi-banking and bank stability. Discussion Paper Series – CRC TR 224.
- [xvii] Malikova, D. (2020). Deposit base of Uzbekistan commercial banks. *World Scientific News*, (143), 115-126.
- [xviii] Matyakubovich, R. A. (2019). Issues of expanding the deposit base of commercial banks. *RELIGACIÓN. Revista de Ciencias Sociales y Humanidades*, 4(15), 274-279.
- [xix] Hubarieva, I., Lebid, O., & Zuieva, O. (2017). Determining the priority sources for attracting deposits in the formation of the financial potential of banks. *Banks and Bank Systems*, 12(3), 215-227.
- [xx]
- [xxi] Hosseini, S., & Dargazani, N. (2020). The Effect of Electronic Banking on Deposit Attraction and Market Concentration in Iran's Banking Industry. *Iranian Economic Review*, 24(2), 545-565.
- [xxii] Alabina, T. A., Grentikova, I. G., & Furman, J. D. (2019). Assessment of Efficiency Attracting Resources in Commercial Bank's Deposit Operations. In *International Scientific Conference "Far East Con"(ISCFEC 2018)* (pp. 1154-1158). Atlantis Press.
- [xxiii] Jeffers, J., Lyu, T., & Posenau, K. (2023). The risk and return of impact investing funds. Available at SSRN 3949530.
- [xxiv] Riedl, A., & Smeets, P. (2017). Why Do Investors Hold Socially Responsible Mutual Funds. *The Journal of Finance*, 72(6).
- [xxv] Plagge, J. & Rowley, J. (2022), The case for low-cost index-fund investing, Vanguard Research, UK.
- [xxvi] Makhmudov, N. M., & Avazov, N. R. (2019). Investment as a source of financing. *Economy and society*, 12 (67)), 75-77.
- [xxvii] Paul, J., & Feliciano-Cestero, M. M. (2021). Five decades of research on foreign direct investment by MNEs: An overview and research agenda. *Journal of business research*, 124, 800-812.
- [xxviii] Elton, E. J., & Gruber, M. J. (2020). A review of the performance measurement of long-term mutual funds. *Financial analysts journal*, 76(3), 22-37.
- [xxix] Kwon, S., Lowry, M., & Qian, Y. (2020). Mutual fund investments in private firms. *Journal of Financial Economics*, 136(2), 407-443.



- [xxx] Aliwi, Abdelkarim, Mzyan, Mohammed (2022). "Islamic Financial Technology and its Role in Enhancing the Growth of Islamic Finance." *Excellence Journal for Economic and Management Research*, Volume 6, Issue 1, p. 87
- [xxxi] Hasan, R., Hassan, M. K., & Aliyu, S. (2020), "Fintech and Islamic Finance: Literature Review and Research Agenda," *International Journal of Islamic Economics and Finance (IJIEF)*, 3(1), 75-94.
- [xxxii] Bilan, Y., Rubanov, P., Vasylieva, T. A., & Lyeonov, S. (2019). The influence of industry 4.0 on financial services: Determinants of alternative finance development. *Polish Journal of Management Studies*.
- [xxxiii] Aqaba, Sahnoon, Enas, Laouer (2022). "Financial Technology, Islamic Finance, and Islamic Banking." *Introduction to the Proceedings of the National Forum on Financial and Banking Reforms in Algeria - Reality and Expectations*, May 30 - 2022, University of Oran 02.
- [xxxiv] Firmansyah EA, Anwar M (2019) Islamic financial technology (Fintech): its challenges and prospect. In: *Achieving and sustaining SDGs 2018 conference: harnessing the power of frontier technology to achieve sustainable development goals*. Atlantis Press.
- [xxxv] Hassan, Kabir, Mustafa Raza Rabbani, and Mahmood Asad Mohd Ali. 2020. Challenges for the Islamic Finance and banking in post COVID era and the role of Fintech. *Journal of Economic Cooperation and Development* 41: 93–116.
- [xxxvi] Ahmad, Syed Maghfoor, and Abdullah Al Mamun. 2020. Opportunities of Islamic FinTech: The Case of Bangladesh and Turkey. *CenRaPS Journal of Social Sciences* 2: 412–26.
- [xxxvii] AlMomani, A. A., & Alomari, K. F. (2021). Financial Technology (FinTech) and its role in supporting the financial and banking services sector. *International Journal of Academic Research in Business and Social Sciences*, 11(8), 1793-1802.
- [xxxviii] Babbas, Minira, Vali, Nabilah (2020). "Islamic Banking Industry in Facing the Challenges of Financial Technology: A Case Study of Malaysia and Gulf Cooperation Council Countries." *International Journal of Pioneering Finance*, Volume 1, Issue 2, p. 45.
- [xxxix] Rabeh, Bresh, Mohammed, Yado (2021). "The Role of Financial Technology in the Development of Islamic Finance - A Case Study of Malaysia." *The Innovation Journal*, Volume 11, Issue 1, p. 623.
- [xl] Babbas, Minira, Vali, Nabilah (2020). "Islamic Banking Industry in Facing the Challenges of Financial Technology: A Case Study of Malaysia and Gulf Cooperation Council Countries." *International Journal of Pioneering Finance*, Volume 1, Issue 2, p. 45.
- [xli] Hasan, R., Hassan, M. K., & Aliyu, S. (2020), "Fintech and Islamic Finance: Literature Review and Research Agenda," *International Journal of Islamic Economics and Finance (IJIEF)*, 3(1), 75-94.
- [xlii] Ahmad, Syed Maghfoor, and Abdullah Al Mamun. 2020. Opportunities of Islamic FinTech: The Case of Bangladesh and Turkey. *CenRaPS Journal of Social Sciences* 2: 412–26.
- [xliii] Babbas, Minira, Vali, Nabilah (2020). "Islamic Banking Industry in Facing the Challenges of Financial Technology: A Case Study of Malaysia and Gulf Cooperation Council Countries." *International Journal of Pioneering Finance*, Volume 1, Issue 2, p. 45.