ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

Research Article *Araştırma Makalesi* DOI:10.16951/trendbusecon.1632324

The Impact of Electronic Banking Service Quality on Customer Satisfaction in Participation Banks: A Case Study of Lebanon

Katılım Bankalarında Elektronik Bankacılık Hizmetlerinin Müşteri Memnuniyetine Etkisi: Lübnan Örneği

Ebrucan İSLAMOĞLU
[1]Department of Finance and Banking, Nevşehir Hacı Bektaş Veli University, Faculty of Economics and Administrative Sciences, Nevşehir, Türkiye

Ahmad HASSAN
[2]Department of Finance and Banking, Nevşehir Hacı Bektaş Veli University, Institute of Social Sciences, Nevşehir, Türkiye

ABSTRACT

This study aims to examine the impact of electronic banking service quality—specifically ease of use, time savings, privacy, and security—on customer satisfaction in Islamic banks in Lebanon. Data were collected through a 40-item questionnaire administered to 212 randomly selected customers of Islamic banks operating in Lebanon (Al Baraka Bank and Arab Finance House). The data were analyzed using SPSS 26 and R. The reliability of the Likert-scale items was assessed using Cronbach's alpha, which yielded a high value of 0.939, indicating excellent internal consistency and supporting the reliability and validity of the instrument. The findings underscore the importance of Islamic banks regularly evaluating the quality dimensions of their electronic banking services to ensure sustainable customer satisfaction. It is recommended that banks continuously assess customer satisfaction levels and monitor the effectiveness of their digital service offerings. Adopting new technologies, developing innovative digital channels, and improving existing services are crucial for meeting customer expectations and increasing satisfaction. These strategies are essential not only for maintaining current customer satisfaction but also for attracting new customers and gaining a competitive edge—particularly during periods of economic uncertainty. The effective use of electronic banking services can help Islamic banks enhance customer loyalty and solidify their position in the financial sector, thereby improving their competitiveness against conventional banks.

JEL Codes: G21, G0, M3.

Keywords: Service Quality, E-Banking Services, Islamic Banks in Lübnan.

ÖZ

Bu çalışma, Lübnan'daki katılım bankalarında elektronik bankacılık hizmet kalitesinin—özellikle kullanım kolaylığı, zaman tasarrufu, gizlilik ve güvenlik boyutlarının—müşteri memnuniyeti üzerindeki etkisini incelemeyi amaçlamaktadır. Veriler, Lübnan'da faaliyet gösteren katılım bankalarından (Al Baraka Bank ve Arab Finance House) rastgele seçilen 212 müşteri üzerinde uygulanan 40 maddelik anket yoluyla toplanmıştır. Elde edilen veriler SPSS 26 ve R programı ile analiz edilmiştir. Anket formundaki likert tipi ölçeklerin güvenilirliği Cronbach Alfa katsayısı ile değerlendirilmiş ve 0.939 gibi oldukça yüksek bir değer elde edilmiştir. Bu durum, çalışmanın yüksek derecede güvenilir ve geçerli olduğunu göstermektedir. Araştırma bulguları, katılım bankalarının müşteri memnuniyetini sürdürülebilir kılmak için elektronik bankacılık hizmetlerinin kalite boyutlarını düzenli olarak değerlendirmelerinin önemini vurgulamaktadır. Bankaların müşteri memnuniyet düzeyini periyodik olarak ölçmeleri ve dijital hizmetlerin etkinliğini takip etmeleri önerilmektedir. Yeni teknolojilere uyum sağlamak, yenilikçi dijital kanallar geliştirmek ve mevcut hizmetleri iyileştirmek, müşteri beklentilerini karşılamak ve memnuniyeti artırmak açısından kritik bir rol oynamaktadır. Bu stratejiler, yalnızca mevcut müşteri memnuniyetini korumakla kalmayıp, aynı zamanda yeni müşteriler çekmeye ve özellikle kriz dönemlerinde rekabet avantajı elde etmeye de katkı sağlayabilir. Elektronik bankacılık hizmetlerinin etkin kullanımı, katılım bankalarının müşteri sadakatini artırmasına ve sektördeki konumlarını güçlendirmelerine yardımcı olabilir. Bu durum, katılım bankalarının geleneksel bankalarla olan rekabet gücünü artıracaktır.

JEL Kodları: G21, G0, M3.

Anahtar Kelimeler: Hizmet Kalitesi, E-Bankacılık Hizmetleri, Lübnan' daki İslami Bankalar.

This article is derived from the master's thesis prepared by Ahmad Hassan under the supervision of Assoc. Prof. Dr. Ebrucan İslamoğlu at Nevşehir Hacı Bektaş Veli University, Institute of Social Sciences, Department of Finance and Banking, and was successfully defended on September 8, 2023. It was also presented as a paper at the 3rd International Graduate Studies Congress (IGSCONG'23).

Geliş Tarihi/Received 03.02.2025
Kabul Tarihi/Accepted 02.10.2025
Yayın Tarihi/Publication Date 13.10.2025

Sorumlu Yazar/Corresponding author: Ebrucan İslamoğlu
E-mail: ebrucanislamoglu@nevsehir.edu.tr

Cite this article: İslamoğlu, E. & Hassan, A. (2025). The Impact of Electronic Banking Services Quality on Customer Satisfaction in Participation Banks: The Case of Lebanon. *Trends in Business and Economics*, *39*(4), 584-602.

Introduction

With the advent of the technological revolution, the banking sector has undergone a profound transformation, leading to substantial changes in customer behavior. These shifts have compelled banks to develop innovative services tailored to evolving customer expectations. The proliferation of electronic banking has enabled financial institutions to enhance service quality and adopt a more customer-centric orientation, thereby responding more effectively to diverse customer needs.

The widespread commercialization of the internet has made it increasingly essential for banks to assess the quality of their electronic services as a means of fostering customer satisfaction. In this context, marketing emerges as a strategic function that allows banks to understand customer preferences and design appropriate service strategies accordingly.

Banking marketing initially emerged in the United States during the 1960s and rapidly gained traction across Europe. It soon became an integral component of customer-focused service models within the sector. During this period, customer satisfaction and market insight played a pivotal role in shaping banks' strategic orientations and operational policies. The emergence of electronic banking has further advanced this evolution by introducing a new dimension to service delivery, significantly contributing to the enhancement of customer satisfaction.

Participation banks seek to meet their customers' financial needs through an interest-free banking model. However, similar to other financial institutions in developing countries, they encounter significant technological and strategic challenges, particularly in the advancement of electronic banking services and the provision of more efficient internet-based platforms (Belhassan, 2012).

The banking sector is experiencing increasing competition driven by globalization and rapid technological advancements. Within this context, enhancing service quality, ensuring customer satisfaction, and achieving sustainable competitive advantage have become critical objectives for financial institutions. This study investigates the impact of electronic banking service quality—specifically ease of use, time savings, privacy, and security—on customer satisfaction in participation banks. The analysis is conducted through testing a set of formulated hypotheses.

This research aims to investigate the impact of electronic banking service quality dimensions on customer satisfaction in participation banks in Lebanon, with a focus on whether this relationship differs across demographic variables. Given the competitive environment, Islamic banks in Lebanon are required to regularly assess and enhance their service quality to sustain customer satisfaction and trust. The study seeks to identify shortcomings in service quality to inform customer-oriented solutions. Employing an analytical descriptive methodology, data were collected via surveys and subjected to statistical analysis to test the proposed hypotheses.

The study tests two primary hypotheses:

1. The quality of electronic banking services (ease of use, time savings, privacy, and security) has no significant effect on customer satisfaction.

2. There is no significant difference in the relationship between electronic service quality and customer satisfaction across demographic factors (gender, age, education, income).

Additionally, sub-questions examine the influence of individual service quality dimensions—ease of use, speed, privacy, and security—on customer satisfaction. The findings aim to offer a strategic framework for participation banks to enhance electronic banking services, thereby improving customer satisfaction and achieving a competitive advantage through a more reliable and satisfactory customer experience (Belhassan, 2012).

Literature Review

In today's era, where the significance of quality in banking services is continually increasing, numerous researchers and scholars have conducted extensive studies at both national and international levels. Table 1 presents a comprehensive summary of prior studies examining service quality in the banking sector.

Table 1.

Literature Review

Topic	Author(s)	Summary of Findings
Quality of Electronic Banking Services	Işkın (2010)	Technology has transformed the banking sector by enabling service delivery through alternative channels and global management.
	Carlson and Ocass (2010)	Electronic service quality positively influences customer satisfaction and behavior in Australia.
	Hamdi (2010)	Service quality positively affects customer satisfaction and loyalty in online banking.
	Kumar and Mishra (2015)	Identified gaps between customer expectations and perceptions of service quality in Indian public banks.
	Saeed et al. (2015)	Reliability, privacy, empathy, and web design are important factors for customer satisfaction in internet banking.
	Ahmadi et al. (2015)	Service quality directly influences customer loyalty by enhancing satisfaction in electronic banking.
	Hammoud et al. (2018)	Reliability is the most significant factor linking e-banking service quality and satisfaction in Lebanon.
	Isak (2020)	Perceived benefits and ease of use significantly influence attitudes towards electronic banking in Somalia.
	Novruzova (2021)	Emphasized banks' responsibility regarding privacy and security issues in electronic banking.
	Sambaombe and Phiri (2022)	Recommended strategies to attract more users to online banking to increase customer satisfaction.
		Suggested that banks
	Doğruol (2022)	take greater responsibility for security and privacy risks in electronic banking.
	Farzana et al. (2022)	Responsiveness and reliability are the strongest factors influencing customer satisfaction in e-banking.
Ease of Use & Time Savings	Moghadam and Kaboly (2015)	Usability, time savings, visual appearance, and accuracy were highly rated by customers in Iran.
	Ashan (2022)	The COVID-19 pandemic increased demand for mobile banking in Sri Lanka.
	Juliana et al. (2020)	Ease of use and trust influence purchase intention through customer satisfaction on Tokopedia's website.
Customer Satisfaction	Sihombing and Meitiana (2024)	Customer satisfaction plays a vital role in enhancing customer loyalty.
	Sihombing and Meitiana (2024)	Customer satisfaction impacts service quality and customer loyalty.
	Mehra and Ranganathan (2008)	Total quality management implementation focuses on improving customer satisfaction.
Privacy & Security	Beyah et al. (2018)	Highlights advancements in secure communications, focusing on IoT security, data privacy, and enterprise network protection.
	Lampson (2009)	Users lack simple security models and methods to safeguard critical information, leading to ineffective security.
	Lin et al. (2012)	Reported a 99.8% true positive rate for anomaly-based IDS on mobile devices; explored security and privacy challenges in emerging wireless networks.

	Bertino et al. (2015)	Proposed a new multi-authority ABE approach to enhance security and privacy in personal health records via fine-grained access control.
	De Luca and von Zezschwitz (2016)	Focused on user-centered privacy and security designs, data transparency, challenges from wearable technologies, and social cybersecurity.
Service Quality & Availability	Lim and Thiran (2010)	Introduced a framework using web service communities to ensure high availability and quality of service.
	Milanovic and Milic (2011)	Presented a model-based methodology and tool to assess service and business process availability automatically.
	Engelmann et al. (2007)	Reviewed programming models for high service availability, enhancing code reuse and QoS adaptability.
	Singh and Kumar (2018)	Proposed relay nodes as cluster heads to improve quality of service metrics in Wireless Sensor Networks.
Comfort & Security in Transactions	Diffie (1998)	Security is fundamental to commerce, evolving to ensure safe transactions, consumer protection, and privacy.
	Pernul et al. (1999)	Highlighted security and fairness as essential for e-commerce, proposing frameworks to build trust.
	Petrova and Sinclair (2003)	Linked low online purchasing rates to security concerns and emphasized education in electronic transaction security.
Customer Support & Responsiveness	Akhter (2015)	Internet and technical comfort positively influence online shopping and banking; income increases usage, age negatively affects online banking.
	Chellappa and Pavlou (2002)	Perceived information security strongly affects e-commerce trust, while limited financial liability has minimal impact.
Ease of Access & Registration	Shrivastava (2024)	Online course registration system streamlines registration and communication using scalable web/cloud technologies and NLP.
	Highton (1997)	Registration affects socioeconomic composition of voters, but turnout differences exist beyond registration laws.
	Lotfy (2022)	Accessibility challenges to birth/death registration offices in Red Sea Governorate cause low registration rates, especially in rural areas, indicating a need for alternative solutions like mobile registration.

The literature consistently underscores the direct influence of electronic service quality on customer satisfaction, loyalty, and behavioral intentions within the banking sector. Empirical studies highlight the critical role of key service quality dimensions—namely reliability, security, usability, and responsiveness—in shaping the overall digital banking experience. Customers tend to develop greater trust in banking services that demonstrate superior performance in these areas, which subsequently leads to heightened satisfaction and fosters enduring customer loyalty. Enhancing these service quality attributes enables banks to deliver more efficient and gratifying digital experiences, thereby exerting a positive impact on customer behavior.

Islamic banking, distinguished from conventional banking systems, operates in compliance with Islamic law (Sharia), which prohibits the payment and receipt of interest (riba). Instead of interest-based transactions, Islamic financial institutions employ a profit-and-loss sharing model that equitably benefits all parties involved. These banks place considerable emphasis on social responsibility by supporting initiatives aimed at enhancing social welfare and providing interest-free investment mechanisms designed to address societal needs and foster economic development (Abu Mezar, 2019; Al-Bahi, 2016).

The primary objective of Islamic banks is to promote economic growth and social well-being through the provision of interest-free and ethically sound financial services. Beyond merely offering interest-free financing, these institutions actively encourage ethical conduct in financial dealings. Functioning as an alternative to traditional banking, Islamic banks adhere to principles of transparency and risk-sharing consistent with Sharia law. Their operational philosophy extends beyond profit maximization to prioritize social justice and communal welfare. Grounded in values such as honesty, transparency, and fairness, Islamic banks cultivate trust among their clientele while maintaining ethical integrity throughout all financial processes.

The Most Important Islamic Banks in Lebanon

Following the enactment of the Islamic Banking Law in 2004, several prominent Islamic financial institutions commenced establishing branches in Lebanon. Notably, Al Baraka Bank and Arab Finance House have emerged as leading entities within this sector (Beshrair & Tuhatan, 2016). In addition, various other Lebanese banks have developed dedicated branches to offer Islamic banking services. These institutions provide interest-free financial products that cater not only to Muslim customers but also to non-Muslim clients. Consequently, Islamic banks in Lebanon serve a diverse customer base, extending their reach both domestically and internationally.

Electronic Banking

Electronic banking denotes the transition from traditional banking methods to digital platforms, enabling financial institutions to deliver services through advanced technologies. This evolution supports banks in maintaining global competitiveness and responding swiftly to customer demands (Demirtaş & Gökten, 2019). Electronic banking encompasses a range of services, including account management, bill payments, trading, and brokerage. The widespread adoption of the internet facilitates banks' ability to access a broader international customer base and achieve expansion with reduced operational costs. Consequently, banks gain a competitive advantage by offering services across an extended geographical scope.

The objectives of electronic banking encompass cost reduction, customer base expansion, and access to global markets. Moreover, this system facilitates faster and more efficient transaction processes (Jiang et al., 2015). In the course of transitioning to electronic banking, financial institutions are required to establish websites to deliver customer services within a digital framework. This infrastructure enables customers to conveniently access banking services through internet connectivity and secure digital contracts (Katawetawaraks, 2013). Consequently, banks not only broaden their customer reach but also improve the speed and security of their service offerings.

Electronic banking encompasses the interaction among commercial bank customers, commercial banks, and central banks. Commercial banks deliver digital banking services, while central banks assume the role of regulators to maintain financial stability and security. This system enhances the speed of transactions, improves customer satisfaction, and provides cost efficiencies for banks, enabling them to operate more effectively and expand their customer reach. Customers engage in transactions and rely on commercial banks for tailored financial solutions, whereas commercial banks utilize online platforms and technological tools to reduce operational costs. Concurrently, central banks oversee the regulatory framework to ensure the overall stability and security of the financial system.

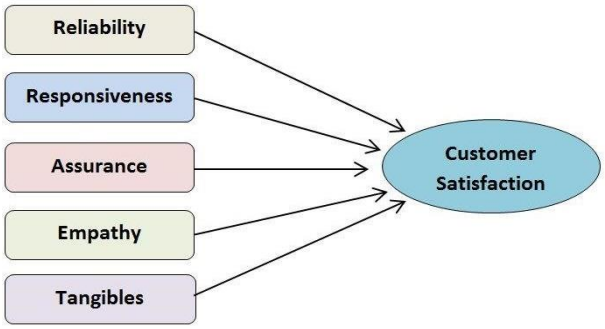
Electronic banking encompasses various technologies, including mobile and internet banking, automated teller machines (ATMs), electronic data interchange (EDI), and electronic funds transfer (EFT). These technologies facilitate efficient transaction processing, enhance customer satisfaction, and improve the overall quality of banking services. Internet and mobile banking platforms provide convenient access to financial services, while ATMs enable cash withdrawals at any time. EDI accelerates commercial transactions by enabling the electronic exchange of business documents, and EFT ensures the secure transfer of funds between accounts. Collectively, these innovations contribute to cost reduction, increased operational efficiency, and stronger customer relationships, thereby providing banks with a competitive advantage.

The Servqual and Gap Models are widely recognized theoretical frameworks employed to assess service quality. The Servqual model evaluates service quality across five dimensions: reliability, responsiveness, assurance, empathy, and tangibles. Conversely, the Gap Model identifies discrepancies between the actual service delivered and customers' ideal expectations, thereby revealing areas of service deficiency. Both models serve as valuable tools for banks to enhance service quality, increase customer satisfaction, and strengthen their competitive positioning in the market.

Servqual model evaluates service quality across five main dimensions: Reliability, Physical Appearance (Tangibility), Responsiveness, Assurance, Empathy. These five dimensions are the key elements taken into account when measuring banks' service quality and should be constantly improved to increase customer satisfaction. These dimensions provide an important measurement tool to continuously improve banks' service quality. It provides fast, secure and low-cost services to customers by facilitating banking transactions.

Figure 1.

SERVQUAL management framework



Source: Parasuraman et al., 1985

The Servperf Model, developed by Cronin and Taylor in 1992, evaluates service quality based on customer perceptions, rejecting the gap model. It focuses on five key dimensions: Reliability, Empathy, Responsiveness, Tangibles, and Security. Unlike the gap model, which compares expected and perceived service, the Servperf model measures service quality solely by performance, emphasizing customer satisfaction by prioritizing perceptions in evaluating service quality. It directly measures how well the service is provided based on customer perceptions, without the need for comparison with expectations.

The E-Servqual Model is developed to measure the quality of electronic services, incorporating dimensions similar to traditional service quality but also accounting for the unique requirements of internet services. In addition to the common service quality dimensions, the E-Servqual model includes key factors specific to electronic banking: Ease of Use, Time Saving, Privacy, and Security. These factors are crucial for assessing service quality in digital banking, enhancing customer satisfaction, and improving the overall customer experience in online services.

Customer Satisfaction is a critical factor for the sustainability and success of businesses. This concept is one of the cornerstones of modern business, an approach by which businesses aim to meet the needs, expectations and requirements of customers. Customer satisfaction enables businesses to establish stronger collaborations with their customers and increase their sales. Customer satisfaction is determined by the harmony between the quality of services offered and the customer's expectations. Customer expectations show how high quality the service is and how satisfactory it is.

Parasuraman et al. (1985) identified three levels of customer satisfaction:

1. PS > ES: Dissatisfaction due to service falling below expectations.

2. PS = ES: Satisfaction as service meets expectations.

3. PS < ES: High satisfaction because service exceeds expectations.

These levels provide an important guide to understanding customer satisfaction and improving the service quality of businesses.

For Islamic banks, electronic banking services play an important role in measuring customer satisfaction. Enriching these services with factors such as convenience, security, speed and low cost are important elements that increase customer satisfaction. The relationship between the quality of electronic banking services and customer satisfaction serves the main purpose of marketing.

Banks have to focus on service quality to ensure customer satisfaction. Customers expect their withdrawals and transfers, especially over the internet, to be carried out quickly, accurately and securely. In this regard, the electronic services offered by banks should improve their quality through factors such as speed, efficiency and accuracy. In this way, customers' needs and expectations are served in the most appropriate way, which ensures customer loyalty and satisfaction in the long term.

Material and Methods

This study used a descriptive-analytical method, with survey data collected as the primary source and secondary sources for the theoretical framework. The research design aimed for in-depth analysis and alignment with existing literature. Careful consideration was given to the survey questions, focusing on the characteristics and

needs of the target audience to enhance the reliability and validity of the research.

This study has been prepared in accordance with the rules of scientific research and publication ethics. Ethics Committee approval of the research was received by the decision of Nevşehir Hacı Bektaş Veli University Social and Human Sciences Ethics Committee Presidency 10.04.2023 dated and numbered 2300026358. The sample of the research consists of 212 customers of Islamic banks in Lebanon and the survey was distributed electronically via Google Form. It can be stated that the groups on which validity and reliability analyses were conducted were sufficient in number for the statistical analyses required (Tabachnick & Fidell, 2007). Data analysis was carried out using SPSS software and the reliability of the data was measured with the Cronbach Alpha test. Additionally, the data were analyzed using statistical methods such as Kolmogorov-Smirnov test, multiple linear regression model, Mann-Whitney test and Kruskal-Wallis test. These statistical tools were applied to verify the results of the research and reveal meaningful relationships, thus strengthening the validity of the findings.

The survey, which forms the basis of the research tool, consists of three main sections: the section containing the personal information of the participants, the section containing questions about the quality of electronic banking services, and the section measuring customer satisfaction. Survey questions were evaluated using a five-point Likert scale. This structure allowed the participants' opinions to be measured more clearly and was an effective tool to achieve the goals of the study. The obtained data were analyzed using the specified methods and statistical tools and conclusions were drawn. This process increased the validity of the research and enabled more reliable

Results

General Analysis of "Quality of Electronic Banking Services"

The survey items in the "Quality of Electronic Banking Services" section measure participants' opinions on the quality of digital services provided by banks, including aspects such as user experience, security, ease of use, and transaction speed. The analysis involved calculating the average score, standard deviation, and weighted average for each item, followed by an overall evaluation of service quality. This helped identify the highest and lowest rated services, providing insight into areas where banks need to focus more to enhance their offerings and improve customer perceptions of service quality.

Table 2.

Analysis of 'Quality of Electronic Banking Services' Section

Field	Mean	Standard Deviation	% Approval Level	Ranking	Comment
Banking services are continuously available	4.28	0.83	85.66%	2	Participants highly agree that banking services are continuously available.
Electronic banking services enable learning all other banking services	4.05	0.82	80.94%	5	Opinions are quite positive regarding the accessibility of broad banking knowledge through electronic banking services.
The benefits provided by electronic banking services encourage requesting services electronically	4.23	0.68	84.53%	4	It is stated that the benefits of electronic banking play a role in the preference for these services.
The bank offers many electronic banking services	4.24	0.75	84.72%	3	Banks have received strong approval for offering a variety of electronic services.
The bank has a dedicated website	4.37	0.67	87.45%	1	Participants emphasize the importance of banks having dedicated websites.
Employees understand customers' needs and work to meet them	3.95	0.88	79.06%	7	There is a moderate level of approval regarding employees' ability to understand and meet customer needs.
The quality of the bank's electronic banking services is considered good	4.00	0.74	80.09%	6	There is a general agreement on the quality of electronic banking services.
Overall Average	4.16	0.53	83.21%	-	Overall participant satisfaction is high, and positive opinions regarding the quality of electronic banking services are prominent.

The analysis of the "Overall Quality of Electronic Banking Services" section shows an average score of 4.16, with an approval rate of 83.21%. The highest approval (87.45%) was for the statement "The bank has a dedicated website," while the lowest (79.06%) was for "Bank employees understand customers' needs and work to meet them." This suggests that employees in Islamic banks in Lebanon may be perceived as less effective in addressing customer needs, possibly due to challenges like foreign currency withdrawal restrictions. Banks are therefore focusing on improving electronic services, such as websites and mobile apps, to boost customer satisfaction.

In the "Ease of Use" section, the average score was 4.14 (82.83% approval), with the highest approval for "The use of electronic banking services is easy" (86.60%) and "The use of electronic banking services helps complete all transactions" (84.15%). However, the statement "The bank facilitates transactions by providing quick assistance to customers via its website" received the lowest approval (79.62%), suggesting room for improvement in customer support. While customers generally find the services easy to use, enhancing customer support could further improve the overall experience

Analysis of the Items in the "Time Savings" Section

This section analyzes how electronic banking services impact time savings for customers. Users' perceptions of electronic banking services have been evaluated based on factors such as speed, efficiency, and the convenience of not having to visit a branc.

The "Time Savings" section shows an average score of 4.06, with a proportional weight of 81.26%, indicating general agreement with the statements. The highest approval rate (89.15%) was for the statement "Using electronic services via the internet or the bank's application enables faster financial transactions and time savings," suggesting that electronic banking helps customers complete transactions quickly and efficiently. However, the statement "Responses to questions are provided quickly" received the lowest approval rate (76.51%), indicating room for improvement in response times. This highlights the need for banks to develop technologies like artificial intelligence to provide faster, more professional responses, further enhancing customer satisfaction.

Table 3.

Analysis of the "Time Savings" Section

Field	Mean	Standard Deviation	%	Ranking	Approval Level
Completing financial transactions through the internet and application saves time	4.46	0.65	89.15	1	Strongly Agree
Electronic banking services are obtained without delay	4.24	0.70	84.81	2	Strongly Agree
Responses to questions are provided quickly	3.83	0.95	76.51	5	Agree
The user can receive the service on the first attempt	3.95	0.88	78.96	3	Agree
Instant responses are given to customer requests	3.84	0.90	76.89	4	Agree
Overall Average	4.06	0.61	81.26	-	Agree

Analysis of the Items in the "Security" Section

The analysis of the items in the "Security" section is based on examining the average, standard deviation, weighted average, and ranking to determine the level of agreement. This analysis is conducted to evaluate the effectiveness and customer perception of security in electronic banking services. The results are presented in Table 4. In the table, the average score, standard deviation, and approval degree for each security item will be presented. These data will help

The "Security" section analysis reveals a general agreement with the statements, with an average score of 3.92 and a proportional weight of 78.46%. The statement "Electronic banking services provide continuous connection with the bank" received the highest approval (81.51%), while "I feel comfortable providing my personal information to the bank online" received the lowest (72.83%). This reflects concerns regarding technological

awareness among Lebanese bank customers. The findings highlight the importance of improving customer security and satisfaction, particularly addressing privacy concerns as electronic banking becomes more widespread. Banks must strengthen security measures to meet these needs.

Table 4.

Cronbach Alpha Test

Cronbach Alpha	Factor	Area
0.754	7	Quality of Electronic Banking Services
0.839	7	Ease of Use
0.856	5	Time Saving
0.877	6	Security
0.837	6	Privacy
0.914	3	Quality of Electronic Banking Services
0.889	9	Customer Satisfaction
0.939	40	All Paragraphs of the Survey Together

The Cronbach Alpha test was used to assess the reliability of the survey. The results indicate that all areas demonstrate sufficient internal consistency and reliability. Specifically, high Cronbach Alpha values (0.914 and 0.939) were obtained in areas such as "Quality of ElectronicBanking Services" and "All Survey Paragraphs Together," which suggests that the data has high reliability.

Hypothesis Testing

Multiple Linear Regression

H01: There is a hypothesis that the quality of electronic banking services (security, ease of use, privacy, time savings) in Islamic banks in Lebanon has no significant effect on customer satisfaction.

The following sub-hypotheses are derived from the main hypothesis:

H01-1: There is a hypothesis that ease of use has no significant effect on customer satisfaction in Islamic banks in Lebanon.

H01-2: There is a hypothesis that time-saving has no significant effect on customer satisfaction in Islamic banks in Lebanon.

H01-3: There is a hypothesis that privacy has no significant effect on customer satisfaction in Islamic banks in Lebanon.

H01-4: There is a hypothesis that the level of security has no significant effect on customer satisfaction in Islamic banks in Lebanon.

These hypotheses aim to examine the relationship between the electronic banking services offered by Islamic banks in Lebanon and customer satisfaction. The results of the test will reveal whether these factors have an impact on customer satisfaction. To test these hypotheses, multiple linear regression analysis was used, and Table 5 presents the results obtained from this analysis:

Table 5.

Multiple Regression Analysis

Independent Variables	β	T	Sig.
Constant	0.697	3.794	0.000
Ease of Use	0.296	5.028	0.000
Time Saving	0.305	5.707	0.000
Privacy	0.136	3.408	0.001
Security	0.127	2.810	0.005

Statistic	Value
Correlation Coefficient	0.811
Adjusted R-squared (R^2)	0.651
F-Statistic	99.280
Sig. (p-value)	0.00

The impact of the quality of electronic banking services on customer satisfaction in Islamic banks in Lebanon has been significantly determined. The correlation coefficient (r) was calculated as 0.811, and the adjusted R^2 value was 0.651. This indicates that 65.1% of the variation in customer satisfaction can be explained by the four main factors—ease of use, time savings, privacy, and security—while the remaining 34.9% is attributed to other factors.

The F-value of 99.280 and the p-value (Sig) of 0.000 indicate a strong and statistically significant relationship between the quality of electronic banking services and customer satisfaction in Islamic banks in Lebanon. This leads to the rejection of the null hypothesis. In other words, each of the four factors—ease of use, time savings, privacy, and security—has a significant impact on customer satisfaction.

The impact of each independent variable is evaluated as follows:

Ease of Use: β = 0.296, meaning that a one-point increase in ease of use increases customer satisfaction by 29.6%.

Time Savings: β = 0.305, meaning that a one-point increase in time savings increases customer satisfaction by 30.5%.

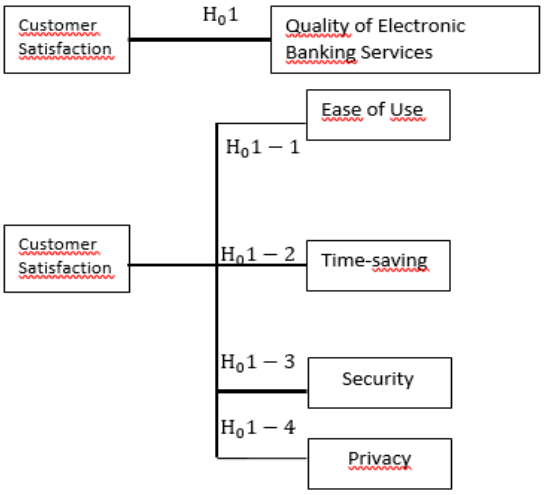
Privacy: β = 0.136, meaning that a one-point increase in privacy increases customer satisfaction by 13.6%.

Security: β = 0.127, meaning that a one-point increase in security increases customer satisfaction by 12.7%.

In conclusion, these four factors have a significant impact on customer satisfaction in Islamic banks in Lebanon. Each of them represents critical aspects that banks should consider in order to improve the customer experience.

Figure 2.

Effect Coefficients Between Variables



Mann-Whitney and Kruskal-Wallis Tests

H02: There is a hypothesis that the quality of electronic banking services, ease of use, time savings, security, privacy, and customer satisfaction do not create a significant difference in terms of demographic factors.

The following sub-hypotheses are derived from the main hypothesis:
H02-1: There is no significant difference between genders in terms of the quality of electronic banking services, ease of use, time savings, security, privacy, and customer satisfaction.

This hypothesis assesses the impact of gender on factors such as electronic banking service quality, ease of use, time savings, security, privacy, and customer satisfaction. The statistical significance is evaluated using the "Sig." value, which indicates that gender has a significant effect on time savings ($p < .05$).

To examine whether these factors differ significantly by gender, the Mann-Whitney U test was employed. Table 6 presents the results of this analysis based on gender.

Table 6.

Mann-Whitney Test Results – Gender

Area	Mean Ranks (Male)	Mean Ranks (Female)	Test Value	Sig. Value
Quality of Electronic Banking Services	104.6	112.4	-0.808	0.419
Ease of Use	104.7	112.2	-0.774	0.439
Time Savings	101.6	121.5	-2.046	0.041
Security	107.1	104.6	-0.254	0.800
Privacy	106.2	107.3	-0.111	0.911
Quality of Electronic Banking Services (Repeated)	104.7	112.1	-0.754	0.451
Customer Satisfaction	103.1	116.8	-1.403	0.161
All Areas Combined	104.1	113.9	-1.002	0.316

Hypothesis H02-2 tests for significant differences in these factors based on age, analyzed using the Kruskal-Wallis test, with the results shown in Table 7.

The Kruskal-Wallis test results show that there are no statistically significant differences in factors such as the quality of electronic banking services, ease of use, time savings, security, privacy, and customer satisfaction across different age groups. All p-values are greater than .05, indicating that age does not significantly influence participants' perceptions of these aspects of electronic banking.

Table 7.

Kruskal-Wallis Test Results – Education

Area	High School	Associate Degree	Bachelor's Degree	Master's Degree	Doctorate	Test Value	Sig. Value
Quality of Electronic Banking Services	110.2	99.0	99.6	120.2	117.7	4.786	0.310
Ease of Use	108.7	101.2	101.8	111.6	122.8	2.821	0.588
Time Savings	122.0	101.3	107.5	102.6	114.3	2.310	0.679
Security	107.4	97.8	110.4	108.1	119.5	2.713	0.607
Privacy	108.5	107.7	104.5	105.7	107.7	0.123	0.998
Quality of Electronic Banking Services (Repeated)	114.5	100.6	104.1	110.4	116.4	1.833	0.766
Customer Satisfaction	114.1	100.4	100.1	112.2	124.1	3.910	0.418
All Areas Combined	114.7	100.5	102.4	111.0	119.7	2.581	0.630

The results of the Kruskal-Wallis test show that there is no significant difference in factors such as the quality of electronic banking services, ease of use, time savings, security, privacy, and customer satisfaction based on education level. Since all "Sig." values are greater than 0.05, the H02-3 hypothesis is accepted, indicating no significant difference based on education level. Similarly, Table 8 confirms that there are no statistically significant differences in participants' responses based on education level.

H02-4 tests whether occupation creates statistically significant differences in these factors, and the results of this test are shown below

Table 8.

Kruskal-Wallis Test Results – Occupation

Area	Mean Ranks (Public Employee)	Mean Ranks (Private Sector Employee)	Mean Ranks (Student)	Mean Ranks (Self-Employed)	Mean Ranks (Business /Project Owner)	Test Value	Sig. Value
Quality of Electronic Banking Services	110.2	99.0	99.6	120.2	117.7	4.786	0.310
Ease of Use	108.7	101.2	101.8	111.6	122.8	2.821	0.588
Time Savings	122.0	101.3	107.5	102.6	114.3	2.310	0.679
Security	107.4	97.8	110.4	108.1	119.5	2.713	0.607
Privacy	108.5	107.7	104.5	105.7	107.7	0.123	0.998
Quality of Electronic Banking Services (Repeated)	114.5	100.6	104.1	110.4	116.4	1.833	0.766
Customer Satisfaction	114.1	100.4	100.1	112.2	124.1	3.910	0.418
All Areas Combined	114.7	100.5	102.4	111.0	119.7	2.581	0.630

According to the results shown in Table 8, the Kruskal-Wallis test's calculated p-value (Sig.) is greater than the 0.05 significance level. This indicates that there are no statistically significant differences in the quality of electronic banking services, ease of use, time savings, security, privacy, and customer satisfaction based on job positions.

The H02-5 hypothesis tests whether there are significant differences in these factors based on the number of banks worked at. The Mann-Whitney U test was used to analyze this hypothesis, determining whether the number of banks participants have worked at impacts their perceptions of these factors

Table 9.

Mann-Whitney U Test Results - Number of Banks Worked With

Area	Mean Ranks (Only One)	Mean Ranks (More Than One)	Test Value	Sig. Value
Quality of Electronic Banking Services	97.6	115.0	-2.077	0.038
Ease of Use	99.4	113.3	-1.653	0.098
Time Savings	100.5	112.3	-1.417	0.156
Security	93.1	119.4	-3.133	0.002
Privacy	100.2	112.6	-1.478	0.140
Quality of Electronic Banking Services (Repeated)	96.4	116.2	-2.351	0.019
Customer Satisfaction	95.4	117.2	-2.599	0.009
All Areas Combined	95.9	116.7	-2.474	0.013

Table 9 shows the results of the Mann-Whitney U test. In the areas where the p-value (Sig.) is less than 0.05, significant differences are observed between these factors based on the number of banks worked at. For example, factors such as the Quality of Electronic Banking Services, Security, Customer Satisfaction, and All Areas Combined show significant differences based on the number of banks worked at. The Mann-Whitney U test results indicate significant differences in the Quality of Electronic Banking Services, Security, Customer Satisfaction, and All Areas Combined based on the number of banks participants have worked with ($p < .05$). However, no significant differences were found in the areas of Ease of Use and Privacy ($p > .05$).

Table 10.

Kruskal-Wallis Test Results - Use of Electronic Banking Services

Area	Mean Ranks	Test Value	Sig. Value
	Rarely	Sometimes (few)	Often (average)
Quality of Electronic Banking Services	62.7	82.2	114.9
Ease of Use	85.2	97.4	98.8
Time Savings	80.9	101.4	103.9
Security	94.1	75.6	107.7
Privacy	95.0	94.3	103.1
Quality of Electronic Banking Services (Repeated)	76.6	86.2	104.3
Customer Satisfaction	66.9	99.3	99.4
All Areas Combined	71.7	89.3	103.5

The Kruskal-Wallis test results show that for the areas of Time Savings and Privacy, the *p*-value is greater than .05, indicating no statistically significant differences based on the use of electronic banking services. However, for other areas and when all areas are combined, the p-value is below 0.05, indicating statistically significant differences in participants' responses. These differences favor regular users of electronic banking services. Hypothesis H02-7, which tests whether there is no statistically significant difference in various factors based on the most frequently used banking services, was examined using the Kruskal-Wallis test.

The Kruskal-Wallis test results show no significant differences in participants' responses regarding "Security" and "Privacy" based on the most frequently used banking services ($p > .05$). However, significant differences were found in other areas, such as quality of electronic banking services, ease of use, time savings, and customer satisfaction, with online banking users having more favorable perceptions ($p < .05$). Hypothesis H02-8, which tested if factors like service quality, ease of use, time savings, security, privacy, and customer satisfaction differ based on the duration of the customer-bank relationship, found that both long-term and new customers have similar views on these aspects. The Kruskal-Wallis test results indicate a significant difference in participants' responses regarding the "Quality of Electronic Banking Services" based on the duration of their relationship with the bank, particularly for those with a 1-5 year relationship ($p < .05$). However, there were no significant differences for other areas, such as ease of use, time savings, security, privacy, customer satisfaction, and all areas combined ($p > .05$). Hypothesis H02-9, which tests for differences in these factors based on the number of years using electronic banking services, was also examined but showed no significant results for most factors.

Construct Validity

In this study, scales previously tested for reliability and validity were used (Al-Hawary & Al-Smeran, 2017). Exploratory factor analysis (EFA) was conducted to assess whether the items were appropriately grouped under the factors defined in the literature (Karagöz et al., 2016). The factor loadings of the items ranged from 0.63 to 0.93, which are considered "good" (Comrey & Lee, 1992). The Kaiser-Meyer-Olkin (KMO) value was 0.904, indicating excellent sample adequacy. Bartlett's test yielded a chi-square value of 5539.563 with 1035 degrees of freedom and a significance level of $p = .000 < .001$, confirming that the relationships between the items are significant and adequate (Nakip, 2006; Sipahi, Yurtkoru, & Çinko, 2006). As a result of the exploratory factor analysis, the 24-item scale was grouped into 7 factors, explaining a total of 63% of the variance. The eigenvalues for the factors ranged from 9.521 to 1.116, with values greater than 1 indicating that the factors are meaningful (Büyüköztürk, 2002). The reliability of the factors was assessed using Cronbach's Alpha coefficients, which were all found to be 0.75 or higher. The overall reliability coefficient of the scale was 0.93, indicating high construct reliability. George and Mallery (2016, p. 240) also consider this value as a criterion for scale reliability. Modifications were made to the scale to align with the study's objectives. All constructs were measured using five-point Likert scales, ranging from "strongly disagree" (1) to "strongly agree" (5), with all items positively worded. The electronic service quality dimensions were adapted from the following studies: Reliability (Loonam & O'Loughlin, 2008; Parasuraman, 2005; Rolland & Freeman, 2010; Stiakakis & Georgiadis, 2009; Zavareh et al., 2012), Ease of Use (Griffiths & Brophy, 2005; Herington & Weaven, 2009; Rolland & Freeman, 2010; Zavareh et al., 2012), Efficiency (Mummalaneni & Meng, 2009; Parasuraman, 2005), Privacy (Parasuraman, 2005; Rolland & Freeman, 2010; Sheng & Liu, 2010; Yen & Lu, 2008), and Responsiveness (Lee & Lin, 2005; Parasuraman, 2005; Stiakakis & Georgiadis, 2009; Zavareh et al., 2012).The Customer Satisfaction construct measures respondents' satisfaction with the electronic service quality of Islamic banks in Lebanon, adapted from studies by Zavareh et al. (2012), Herington and Weaven (2009), Sheng & Liu (2010), and Ahmed (2021). The factor loadings for the variables used in this study are provided in the Table 11.

Table 11.

The factor loadings of the variables used in the survey

Component	Statements	Factor Loading
1. Ease of Use & Time Savings	The application and website help reduce my effort.	0.479
	The website allows me to connect more with the bank.	0.509
	I will regularly use electronic banking services.	0.344
	I would recommend others to use internet banking.	0.492
	Completing financial transactions through the internet and application saves time.	0.371
	I believe I am doing the right thing by using the bank's application and website.	0.568
	I am satisfied with the services the bank provides me.	0.581
2.Privacy&Security	Electronic banking services are obtained without delay.	0.390
	Electronic banking services on the website are comprehensive.	0.517
	Full privacy is ensured when performing transactions with the bank.	0.543
	The bank keeps my personal information confidential when using electronic banking services.	0.512
	Electronic banking services do not allow others to access my personal information.	0.493
	Electronic banking services do not allow the misuse of my personal information.	0.570
	Privacy is ensured for the information the customer enters on the website.	0.479
3.Service Quality & Availability	The bank keeps detailed and easily verifiable records and files.	0.330
	General quality of electronic banking services.	0.493
	The bank has a dedicated website.	0.620
	The bank offers many electronic banking services.	0.660
	Banking services are continuously available.	0.649
	The quality of the electronic banking services provided by the bank is considered good.	0.525
	Electronic banking services enable learning about all other banking services.	0.433
4.Comfort & Security in Transactions	The benefits provided by electronic banking services encourage the electronic request of the service.	0.762
	I feel comfortable when performing transactions through internet banking and the app.	0.692
	Electronic banking transactions are secure.	0.649
	I feel comfortable providing my personal information to the bank over the internet.	0.679
	I feel secure when conducting transactions electronically with this bank.	0.416
	Electronic banking services provide high protection for my banking transaction information.	0.661
5.Customer Support & Responsiveness	Customer requests are responded to immediately.	0.649
	Questions are answered promptly.	0.624
	The user can receive the service on the first attempt.	0.360
	Electronic banking services provide quick assistance to resolve issues for customers.	0.564
	Employees understand the customer's needs and work to meet them.	0.354
	The bank provides instant assistance through its dedicated website to facilitate customers' transactions.	0.504
6. Ease of Access & Registration	Useful information can be obtained by using internet banking services.	0.542
	It is easy to register and log in to the bank's application and internet portal.	0.528
	The use of electronic banking services helps complete all transactions.	0.556
	The use of electronic banking services is easy.	0.523
	I am completely satisfied with the language used on the bank's website.	0.435
	The language used within the site and application is clear and straightforward.	0.524
	The technical terms used in the bank's application and website were understandable.	0.467

Table 12 presents the results of the Confirmatory Factor Analysis (CFA) conducted to assess the measurement model's validity and reliability. The analysis confirms that the factor loadings for the included items meet the acceptable threshold of 0.50, ensuring item reliability. The model fit results presented in Table X indicate that the model demonstrates a significantly better fit compared to the baseline model ($\chi^2(725) = 1632.73$, $p < .001$). The fit indices are generally at an acceptable level, with CFI (0.793), TLI (0.778), IFI (0.796), and RMSEA (0.077) supporting a reasonable model fit. GFI (0.722) indicates a moderate fit, while MFI (0.116) reflects a poor fit. Hoelter's critical sample size values suggest that the model was evaluated with an adequate sample size. Additionally, the KMO test confirmed high sampling adequacy (0.918).

Table 12.

Confirmatory Factor Analysis (CFA) Results

Category	Index / Value	Explanation
Model Fit Test	$\chi^2(725) = 1632.73$, $p < 0.001$	Significant improvement over baseline model (baseline model: $\chi^2(780) = 5169.72$)
Fit Indices		
CFI (Comparative Fit Index)	0.793	Marginally acceptable fit
TLI / NNFI (Tucker-Lewis Index)	0.778	
NFI (Normed Fit Index)	0.684	
IFI (Incremental Fit Index)	0.796	
RNI (Relative Noncentrality Index)	0.793	
PNFI (Parsimony-Adjusted NFI)	0.636	
RFI (Relative Fit Index)	0.660	
Error Indices		
RMSEA	0.077 (90% CI [0.072, 0.082]; p-close < 0.001)	Acceptable level
SRMR (Standardized Root Mean Square Residual)	0.077	Acceptable level
Information Criteria		
Log-Likelihood	-8163.20	
AIC (Akaike Information Criterion)	16516.40	
BIC (Bayesian Information Criterion)	16834.82	
SSABIC (Sample-Size Adjusted BIC)	16533.80	
ECVI (Expected Cross-Validation Index)	8.639	
Hoelter's N (Critical Sample Size)	$\alpha = 0.05$: N = 102.93 $\alpha = 0.01$: N = 106.52	Minimum sample size required for model adequacy
Other Fit Measures		
GFI (Goodness of Fit Index)	0.722	Moderate fit
MFI (McDonald Fit Index)	0.116	Poor fit
KMO Test (Sampling Adequacy)	Overall: .918 Variables: 0.844–0.966	Excellent sampling adequacy

Table 13.

CR and AVE values

Factor	Number of items	CR	AVE
1	3	0.75	0.34
2	4	0.81	0.38
3	4	0.82	0.42
4	4	0.87	0.53
5	4	0.85	0.44
6	6	0.86	0.38

Table 13 presents the Composite Reliability (CR) values, which range from 0.75 to 0.86, indicating acceptable reliability across the factors. The Average Variance Extracted (AVE) values vary between 0.34 and 0.53, with only Factor 4 exceeding the recommended threshold of 0.50, thereby demonstrating sufficient convergent validity for that factor. It should be noted that these calculations included only items with factor loadings greater than 0.50.

Discussion

The findings of this study confirm that the quality of electronic banking services offered by participation banks in Lebanon significantly affects customer satisfaction. This is consistent with previous research conducted in the Lebanese banking sector by Hammoud et al. (2018) and Hakim and Naeem (2018). Additionally, Janahi and Almubarak (2017) found that overall service quality positively influences customer satisfaction in Islamic banks. Our study contributes to the literature by highlighting the critical role of service quality specifically in electronic banking.

The necessity of technological adaptation in Islamic banking as a competitive imperative (Hanzaee & Nasimi, 2010), along with factors such as security and accessibility affecting customer satisfaction, was also evident in our results. Chmeis and Chmeis (2024) demonstrated that e-satisfaction and e-trust can enhance customer loyalty, emphasizing the importance of digital service quality for long-term customer relationships.

Religious commitment and customer engagement in Islamic banking have been found to increase customer loyalty alongside service quality (Abror et al., 2019), and the satisfaction-loyalty link identified by Fida et al. (2020) is supported in the regional context as well. Goveas and D'Souza (2023) confirmed the importance of electronic banking quality in both private and public banks.

In conclusion, this study reveals that electronic service quality not only enhances customer satisfaction but also

serves as a strategic tool providing competitive advantage to participation banks (Belhassan, 2012). Therefore, it is essential for participation banks to continuously improve their digital infrastructure with a focus on security and ease of use, while actively incorporating customer feedback.

Theoretical Implications

This study theoretically supports the decisive role of electronic banking service quality in customer satisfaction. The sub-dimensions of electronic service quality—ease of use, time savings, privacy, and security—were confirmed as key factors shaping customer satisfaction (Hammoud et al., 2018; Hakim & Naeem, 2018). Furthermore, the impact of service quality on customer loyalty and commitment in the Islamic banking context aligns with existing literature (Abror et al., 2019; Fida et al., 2020).

By examining the effect of e-banking quality across demographic variables, the study found no significant differences, suggesting that the impact of electronic service quality on customer satisfaction is universal (Belhassan, 2012).

Additionally, the critical role of technological factors and digitalization in enhancing customer satisfaction is corroborated by Hanzaee and Nasimi's (2010) findings on automated banking satisfaction.

Practical Implications

The research demonstrates that enhancing electronic banking service quality is essential for participation banks to achieve customer satisfaction and gain competitive advantage. Banks must prioritize security, privacy, and ease of use in their digital platforms to strengthen customer trust and loyalty (Chmeis & Chmeis, 2024; Goveas & D'Souza, 2023). Moreover, service improvement processes based on customer feedback enable banks to respond swiftly to customer needs and increase their technological competitiveness (Belhassan, 2012). Integrating religious and cultural sensitivities unique to Islamic banking into digital services can also provide a significant advantage in fostering customer loyalty (Abror et al., 2019).

Limitations and Future Research Directions

This study is limited to participation banks operating in Lebanon, which restricts the generalizability of the findings. Comparative studies examining Islamic banking practices in different countries would enrich the literature (Fida et al., 2020). Furthermore, psychosocial variables such as religious commitment and customer engagement were not directly examined. Future research is recommended to explore the effects of these variables on electronic banking satisfaction (Abror et al., 2019). Given the rapid evolution of technology, future studies evaluating the impact of mobile banking and artificial intelligence-based services on customer satisfaction would provide valuable new insights (Goveas & D'Souza, 2023).

Conclusion

This study has demonstrated that the quality of electronic banking services in Lebanon's participation banks has a strong and significant impact on customer satisfaction. Dimensions of service quality such as ease of use, time savings, privacy, and security significantly shape customer satisfaction.

The research highlights that electronic service quality is not only crucial for increasing customer satisfaction but also strategically important for banks to secure competitive advantage and strengthen customer loyalty. Participation banks need to continuously improve digital service quality, prioritize customer feedback, and keep pace with technological innovations.

Finally, while this study contributes to Islamic banking literature in the context of electronic banking quality, further research across different geographic and cultural contexts is encouraged to derive broader implications.

Etik Komite Onayı: Bu çalışma bilimsel araştırma ve yayın etiği kurallarına uygun olarak hazırlanmıştır. Araştırmanın Etik Kurul onayı Nevşehir Hacı Bektaş Veli Üniversitesi Sosyal ve Beşerî Bilimler Etik Kurul Başkanlığı'nın 10.04.2023 tarih ve 2300026358 sayılı kararıyla alınmıştır.
Katılımcı Onamı: Çalışmaya katılan katılımcılardan onam alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir-A.H.; Tasarım-E.İ., A.H.; Denetleme-E.İ..; Kaynaklar-A.H.; Veri Toplanması ve/veya İşlemesi-A.H.; Analiz ve/ veya Yorum-A.H.; Literatür Taraması-A.H.; Yazıyı Yazan-E.İ.; Eleştirel İnceleme-E.İ.
Çıkar Çatışması: Yazarlar, çıkar çatışması olmadığını beyan etmiştir.
Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

Ethics Committee Approval: This study has been prepared in accordance with the rules of scientific research and publication ethics. Ethics Committee approval of the research was received by the decision of Nevşehir Hacı Bektaş Veli University Social and Human Sciences Ethics Committee Presidency 10.04.2023 dated and numbered 2300026358.

Informed Consent: Consent was obtained from the participants who participated in the study.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept: A.H., Design: E.İ., A.H., Supervision: E.İ., Resources: A.H., Data Collection and/or Processing: A.H., Analysis and/or Interpretation: A.H., Literature Search: A.H., Writing Manuscript: E.İ., Critical Review: E.İ.
Conflict of Interest: The authors have no conflicts of interest to declare.
Financial Disclosure: The authors declared that this study has received no financial support.

References

Abror, A., Patrisia, D., Engriani, Y., Evanita, S., Yasri, Y. & Dastgir, S. (2020). Service quality, religiosity, customer satisfaction, customer engagement and Islamic bank's customer loyalty. *Journal of Islamic Marketing*, *11*(6), 1691-1705. [CrossRef]

Abu Mezar, D. (2019). *Quality of banking services in Palestinian banks operating in Al-Khalil city: A comparative study between Islamic and commercial banks*. Al-Khalil University.

Ahmadi, A. (2015). The Impact of Electronic Banking Service Quality on Customer Loyalty through Their Intermediary Role of Banks. *International Journal of Review in Life Sciences*, *5*(1), 692-700.

Ahmed, F. A. (2021). *The impact of e-banking services on customer satisfaction in commercial banks of Somalia* (Thesis No: 714804). [Master's thesis, Ankara Yıldırım Beyazıt University]. YÖK Thesis Center

Akhter, S. (2015). Impact of Internet Usage Comfort and Internet Technical Comfort on Online Shopping and Online Banking. *Journal of International Consumer Marketing, 27*, 207-219.

Al-Bahi, S. D. (2016). *The impact of electronic banking service quality on customer satisfaction: A field study on the Islamic Bank of Jordan in Amman*. [Master's thesis, Faculty of Business, Middle East University].

Al-Hawary, S. I. S., & Al-Smeran, W. F. (2017). Impact of electronic service quality on customers satisfaction of Islamic banks in Jordan. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *7*(1), 170-188.

Ashan, L. (2022). *Impact of e-service quality on customer adaptation towards mobile banking during COVID-19 pandemic in Sri Lanka*. [Master's thesis, University of Kelaniya, Sri Lanka].

Belhassan, S. (2012). *The impact of service quality on achieving customer satisfaction: A case study of Mobilis Agency in Ouargla* [Master's thesis. Kasdi Merbah University].

Bertino, E., Deng, R. H., Huang, X., & Zhou, J. (2015). Security and privacy of electronic health information systems. *International Journal of Information Security*, *14*, 485-486.

Beshrair, O., & Tuhatan, M. (2016). The impact of electronic banking services on improving service quality in public and private banks in Blida city. *Maâref Journal of Economic Sciences*, (Issue 20). [CrossRef]

Beyah, R.A., Chang, B., Li, Y., & Zhu, S. (2018). Security and Privacy in Communication Networks. *Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*.

Carlson, J., & O'Cass, A. (2010). Exploring the relationships between service quality, satisfaction, attitudes, and behaviors in content-driven service websites. *Journal of Services Marketing*, *24*(2), 112-122. [CrossRef]

Chellappa, R.K., & Pavlou, P.A. (2002). Perceived Information Security, Financial Liability and Consumer Trust in Electronic Commerce Transactions. *Innovation Finance & Accounting eJournal*.

Chmeis, S.T., & Zaiter, R. (2024). The Impact of E-Service Quality on E-Loyalty Through the Mediating Effects of E-Satisfaction and E-Trust in Lebanon. *Journal of Law and SustainableDevelopment*. [CrossRef]

Cronin Jr, J. J., & Taylor, S. A. (1992). Measuring service quality: A reexamination and extension. *Journal of Marketing*, *56*(3), 55-68. [CrossRef]

De Luca, A., & von Zezschwitz, E. (2016). Usable privacy and security. *it-Information Technology*, *58*(5), 215-216.

Demirtaş, G., & Gökten, S. (2019). İslami bankaların hizmetleri ve ürünleri: Türkiye'deki uygulamalar.

Diffie, W. (1998). E-commerce and security. *StandardView*, *6*(3), 116-117.

Doğruol, Y. (2022). *Elektronik bankacılık ve hukuki boyutu ile banka ve müşteri yükümlülükleri [Electronic banking and legal aspects of bank and customer obligations]* (Tez No: 711112). [Yüksek Lisans Tezi, Başkent Üniversitesi]. YÖK Tez Merkezi.

Engelmann, C., Scott, S.L., Leangsuksun, C., & He, X. (2007). On Programming Models for Service-Level High Availability. *The Second International Conference on Availability, Reliability and Security (ARES'07)*, 999-1008.

F Goveas, C., & Kalluraya, S. (2023). Customer Satisfaction of E-Banking Services and Products Provided by the Nationalized and Private Banks: A Review of Literature. *International Journal of Science and Research (IJSR)*.

Fida, B. A., Ahmed, U., Al-Balushi, Y., & Singh, D. (2020). *Impact of service quality on customer loyalty and customer satisfaction in Islamic banks in the Sultanate of Oman*. *SAGE Open*.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-50. [CrossRef]

Gürbüz, S., & Şahin, F. (2014). *Research methods in social sciences*. Seçkin Publishing, p. 271.

Hair Jr, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, *26*(2), 106-121. [CrossRef]

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis. Upper Saddle River*. Pearson Prentice Hall.

Hakim, Z., & Naeem, B. (2018). Measuring Perceived Service Quality and Customer Satisfaction for Service Managers: The Case of the Lebanese Retail Banking Industry. *Journal of Business and Management*, *20*(7), 1–9. [CrossRef]

Hamdi, C. (2010). The Impact of Quality of Online Banking on Customer Commitment. *Communications of the IBIMA*, *2010*, 1-8. [CrossRef]

Hammoud, J. A., Bizri, R. M., & El Baba, I. (2018). The Impact of E-Banking Service Quality on Customer Satisfaction: Evidence From the Lebanese Banking Sector. *SAGE Open*, *8*(3), 1–12. [CrossRef]

Hammoud, J., Bizri, R. M., & El Baba, I. (2018). The impact of e-Banking service quality on customer satisfaction: Evidence from the Lebanese banking sector. *SAGE Open*, *8*(3). [CrossRef]

Hanzaee, K. H., & Nasimi, M. B. (2010). Measuring Banks' Automated Service Quality: A Re-Examination and Extension in an Islamic Country. *Journal of Islamic Marketing*, *1*(3), 254–267. [CrossRef]

Herington, C., & Weaven, S. (2009). E- retailing by banks: e-service quality and its importance to customer satisfaction. *European Journal of Marketing*, *43*, 1220-1231. [CrossRef]

Highton, B. (1997). Easy Registration and Voter Turnout. *The Journal of Politics, 59*, 565 - 575. [CrossRef]

Isak, A. H. (2020). *A study on customers' attitudes and behaviors towards technological innovations in electronic banking: The case of Somalia* (Thesis No: 626424). [Master's thesis, Karadeniz Technical University]. YÖK Thesis Center.

Işkın, S. (2010). *Risks and control of alternative distribution channels (electronic banking services) in the Turkish banking system* (Thesis No: 253799). [Master's thesis, Marmara University]. YÖK Thesis Center.

Janahi, M. A., & Almubarak, M. M. S. (2017). The impact of customer service quality on customer satisfaction in Islamic banking. *Journal of Islamic Marketing*, *8*(4), 595–604. [CrossRef]

Jeevananda, S. (2011). Study on Customer Satisfaction Level at Hypermarkets in Indian Retail Industry (July 29). *RJSSM*,*01*(03), July-2011, [CrossRef]

Jiang, Y., Shang, J., Liu, Y., & May, J. (2015). Redesigning promotion strategy for e-commerce competitiveness through pricing and recommendation. *International Journal of Production Economics*, *167*,257-270. [CrossRef]

Juliana, N., & Hubner, B. (2020). Ease of Use Dan Trust Terhadap Purchase Intention Melalui Customer Satisfaction Pada Situs Web Tokopedia. *Jurnal Ecodemica*,4(2), September 2020.

Katawetawaraks, C., & Wang, C.(2011). Online Shopper Behavior: Influences of Online Shopping Decision (October 25, 2013). *Asian Journal of Business Research*, 1(2). [CrossRef]

Kumar, M., & Mishra, K. (2015). Widening Service Quality Gap and Customer Satisfaction: A case of Public Sector Banks. *International Journal of Advance Research in Computer Science and Management Studies*, *3*(1), 30-36.

Lampson, B.W. (2009). Privacy and securityUsable security. *Communications of the ACM, 52*, 25-27.

Lee, G. G., Lin, H. F. (2005). Customer Perception Of E-Service Quality In Online Shopping. *Emerland Group Publishing Limited*, *33*(2), 161-176. [CrossRef]

Lim, E., & Thiran, P. (2010, July). *Sustaining high-availability and quality of web services*. In International Conference on Web Engineering (pp. 560-565). Berlin, Heidelberg: Springer Berlin Heidelberg.

Lin, X., Liu, J., & Gritzalis, S. (2012). Security and privacy in emerging information technologies. *Security & Communication Networks*, *5*(1).

Loonam, M., & O'Loughlin, D. (2008). Exploring e-service quality: a study of Irish online banking. *Emerland Group Publishing*, *26*(7), 759-780. [CrossRef]

Lotfy, N. (2022). Accessibility of registration offices for births and deaths: Red Sea Governorate, Egypt. *Eastern Mediterranean Health Journal*, *28*(4), 266-271.

Mehra, S., & Ranganathan, S.K. (2008). Implementing total quality management with a focus on enhancing customer satisfaction. *International Journal of Quality & Reliability Management, 25*, 913-927.

Milanovic, N., & Milic, B. (2011). Automatic Generation of Service Availability Models. *IEEE Transactions on Services Computing, 4*, 56-69.

Moghadam, S. R., & Kaboly, M. R. (2015). Analysing Electronic Service Quality from Customer Point of View in Telecommunications Company of Esfahan. *International Journal of Life Science and Engineering*, *1*(2), 39-44.

Novruzova, S. (2021). *The duty of care of banks in*

electronic banking (Thesis No: 663514). [Master's thesis, Selçuk University]. YÖK Thesis Center.

Parasuraman, A., Zeithaml, V.A. & Malhotra, A. (2005). ESQual: A multiple item scale for assessing electronic service quality. *Journal of Service Research*, *7*(3),1-21. [CrossRef]

Pernul, G., Röhm, A.W., & Herrmann, G. (1999). Trust for Electronic Commerce Transactions. *Symposium on Advances in Databases and Information Systems*.

Petrova, K., & Sinclair, R. (2003). Expanding the understanding: transactions and security awareness for ebusiness students. *Journal of Applied Computing and Information Technology*.

Rolland, S., & Freeman, I. (2010). A new measure of e-service quality in France. *Emerland Group Publishing Limited*, *38*(7), 497-517. [CrossRef]

Saeed, S., Azim, M., Humyon, A. F., & Choudhary, A. I. (2015). Service quality factors affecting adaption of internet banking in Pakistan. *International Journal of Economics, Commerce and Management*, *3*(2), 1-10.

Sambaombe, J., & Phiri, J. (2022). An analysis of the impact of online banking on customer satisfaction in commercial banks based on the TRA model (A case study of Stanbic Bank Lusaka Main Branch). *Open Journal of Business and Management*, *10*, 369-386. [CrossRef]

Sheng, T., & Liu, C. (2010). An empirical study on the effect of e-service quality on online customer satisfaction and loyalty. *Emerland Group Publishing Limited*, *1*(3), 273-283. [CrossRef]

Shrivastava, A. R. (2024). Online Course Registration Management System: A Comprehensive Analysis. *International Journal for Research in Applied Science and Engineering Technology*. [CrossRef]

Sihombing, A.F., & Meitiana, M. (2024). The Costumer Satisfaction Roles in Customer Satisfaction Affect the Quality of Service Customer Loyalty.

Singh, A.K., & Kumar, P. (2018). Advancement in Quality of Services in Wireless Sensor Networks. *2018 3rd International Conference on Internet of Things: Smart Innovation and Usages (IoT-SIU)*, 1-5. [CrossRef]

Stiakakis, E., & Georgiadis, C. (2009). E-service quality: comparing the perception of providers and customer. *Emerland Group Publishing Limited*, *19*(4), 410-430. [CrossRef]

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Pearson.

Yen, C. & Lu, H. (2008). Effects of e-service quality on loyalty intention: an empirical study in online auction. *Managing Service Quality*, *18*(2), 127-146. [CrossRef]

Zavareh, F. B., Ariff, M. S. M., Jusoh, A., Zakuan, N., Bahari, A. Z., & Ashourian, M. (2012), E-service quality dimensions and their effect on e-customer satisfaction in internet banking service. *Procidia Social and Behavioral Sciences*, *40*, 441-445. [CrossRef]

Genişletilmiş Özet

Bu araştırma, Lübnan'daki İslami bankaların elektronik bankacılık hizmetlerinin (kullanım kolaylığı, zaman tasarrufu, gizlilik ve güvenlik, müşteri memnuniyeti) üzerindeki etkisini incelemeyi amaçlamaktadır. Çalışma kapsamında, 40 maddeden oluşan bir anket 212 katılımcıya uygulanmış ve elde edilen veriler SPSS 26 ve R programı ile analiz edilmiştir. Araştırma, Lübnan bölgesindeki İslami bankaların müşterilerinden (Al Baraka Bank ve Arab Finance House) rastgele seçilen 212 katılımcıya yönelik olarak gerçekleştirilmiştir. Ankette yer alan Likert ölçeği sorularının güvenilirliği Cronbach Alpha katsayısı ile değerlendirilmiş ve 0,939 olarak tespit edilmiştir. Bu yüksek değer, araştırmanın güvenilirliğini ve geçerliliğini güçlü bir şekilde desteklemektedir. Araştırma sonuçları, müşteri memnuniyetinin sürdürülebilirliği için İslami bankaların elektronik bankacılık hizmetlerinin kalite boyutlarını düzenli olarak takip etmelerinin önemini vurgulamaktadır. Ayrıca, bankaların periyodik olarak müşteri memnuniyetini ölçmesi ve elektronik hizmetlerin etkinliğini değerlendirmesi önerilmektedir. Teknolojik gelişmelere uyum sağlamak, yeni dijital kanallar eklemek ve mevcut kanalları geliştirmek, müşteri ihtiyaçlarını karşılamak ve memnuniyeti artırmak açısından kritik bir rol oynamaktadır. Araştırmacılar, bu tür stratejilerin özellikle kriz dönemlerinde müşteri memnuniyetini korumaya, yeni müşteriler kazanmaya ve rekabet avantajı elde etmeye yardımcı olacağını belirtmektedir. Bu öneriler, İslami bankaların geleneksel bankalarla rekabet edebilirliğini artırmasına ve pazardaki konumlarını güçlendirmesine katkı sağlayacaktır. Elektronik bankacılığın etkili bir şekilde kullanılması, bankaların müşteri bağlılığını artırmalarına ve sektördeki liderliklerini pekiştirmelerine imkân tanıyabilir. Araştırma bulguları, elektronik hizmet kalitesinin, elektronik bankacılık hizmetlerinin kalitesi, zaman tasarrufu, güvenlik, gizlilik, kullanım kolaylığı ve müşteri memnuniyeti boyutları üzerinde anlamlı bir etkisi olduğunu ortaya koymuştur. Elektronik bankacılığın etkili bir şekilde kullanılması, bankaların müşteri bağlılığını artırmalarına ve geleneksel bankalarla rekabet edebilirliğini artırmalarına olanak sağlayacaktır.