



The Influence of System Security and Sharia Compliance on User Loyalty in Financial Technology Applications

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ABSTRACT

This study aims to analyze the effect of system security and sharia compliance on user loyalty of sharia-based fintech applications in Indonesia. A quantitative approach is used with a survey method of 130 respondents who are active users of sharia fintech applications. The instrument in the form of a Likert-scale questionnaire was analyzed using the SEM-PLS technique. The results showed that system security and sharia compliance had a positive and significant effect, both partially and simultaneously, on user loyalty. High system security, such as data protection and authentication, as well as compliance with sharia principles such as contract transparency and Sharia Supervisory Board supervision, are proven to build trust and increase user attachment to the application. These findings contribute to the development of strategies to increase customer loyalty in Islamic fintech in Indonesia.

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INTRODUCTION

The development of information and communication technology in the digital era has brought major transformations in various sectors of life, including the financial sector. In the last two decades, technological innovation has led to the birth of various digital-based financial platforms known as financial technology (fintech). Fintech refers to the application of technology to provide financial services more efficiently, quickly, transparently, and widely accessible to the public. This phenomenon has globally affected consumer behavior, the business models of financial institutions, and the structure of the financial market itself. According to Alnsour (2022), fintech is a disruptive force capable of creating higher value than conventional financial services through service personalization, ease of use, and operational efficiency. Fintech or financial technology has become one of the most significant innovations in the world of finance and business, this is also conveyed by one of the experts, namely "In this modern era full of technological innovation, the role of technology has become a major catalyst in shaping the business landscape" (Sutisna, 2023) with the potential to change the way people interact with financial services.

At the global level, fintech adoption is growing rapidly especially in developing countries that have limited access to formal financial institutions. This is driving digital financial inclusion as part of the economic development strategy. Service innovations such as peer-to-peer (P2P) lending, mobile payments, and digital investment platforms are alternative solutions that help people meet their transaction, financing, and investment needs. The World Bank said that digital technology has contributed significantly to global financial inclusion, expanding the reach of services to previously unbanked segments of society.

Indonesia as a country with a population of more than 270 million, with a high internet adoption rate, is also a fertile ground for the growth of the fintech industry. Based on data from InCorp Indonesia, the

number of fintech companies increased dramatically from 51 companies in 2011 to 336 companies in 2023 (Lubis, 2023). This growth is spurred by the public's need for easy, flexible financial services, and in line with the digitalization program promoted by the government. Fintech is not only growing in the payment sector, but also extends to financing, investment, and financial planning. One important trend in the fintech ecosystem in Indonesia is the emergence of sharia fintech, a digital financial platform that integrates Islamic sharia principles in its services. Sharia fintech offers value-based financial solutions, such as the prohibition of *riba* (interest), the prohibition of *gharar* (uncertainty), and the prohibition of *maysir* (speculation), and emphasizes transparency and fairness in every contract. This service is designed to meet the financial needs of Muslim communities who want to comply with the provisions of Islamic law in their financial activities. This is in accordance with the words of Allah SWT in Surah Al-Baqarah verse 275:

"الرِّبَا وَحَرَّمَ الْبَيْعَ اللَّهُ وَأَحَلَّ"

"...Allah has justified buying and selling and forbidden usury..." (QS. Al-Baqarah: 275).

With the largest Muslim population in the world, Indonesia has a huge market potential for the development of Islamic fintech. However, the success of Islamic fintech is not only determined by the existence of value-based services, but also by the platform's ability to build user loyalty. User loyalty is an ongoing commitment to continue using and recommending services to others. According to Syarifuddin and Mahesa (2020), user loyalty reflects positive perceptions of quality, trust, and service compatibility with believed values. One of the main factors that influence user loyalty is system security. In the context of digital services, security is a fundamental need for users because it involves protecting personal data, financial transactions, and access to sensitive information. Users who feel that the platform is not secure enough tend to lose trust and stop using it. Nangin et al. (2020) state that a good security system, such as double authentication, data encryption, and compliance with regulations, has a significant influence on user trust and loyalty. In an Islamic perspective, maintaining the security and trustworthiness of personal information is part of the ethics of *bermuamalah*. As Allah SWT says in Surah Al-Baqarah verse 283:

"...رَبَّهُ اللَّهُ وَلْيَتَّقِ اللَّهَ أَوْثِقَهُ الَّذِي فَلْيُوَدِّ بَعْضًا بَعْضَكُمْ أَمِنْ فَإِنْ..."

"...So let the trustee fulfill his trust (honestly), and let him fear Allah his Lord..." (QS. Al-Baqarah: 283)

Besides security, another crucial aspect of Islamic fintech is sharia compliance. Sharia compliance includes the integration of Islamic principles in all service processes, such as contract transparency, fair profit-sharing system (*mudharabah* or *musyarakah*), and supervision by the Sharia Supervisory Board (DPS). Ramadhan (2022) mentioned that the level of sharia compliance of a platform is very influential on user loyalty, especially among Muslim communities who have high sensitivity to *halal* and *haram* aspects of finance. In the Qur'an, Allah SWT prohibits all forms of taking unlawful property and emphasizes the importance of fair and legal transactions, as stated in Surah An-Nisa verse 29:

"...بِالْبَاطِلِ يَبْنِيكُمْ أَمْوَالَكُمْ تَأْكُلُوا لَا آمَنُوا الَّذِينَ أُيُّهَا يَا"

"O you who believe! Do not eat your neighbor's wealth by false means..." (QS. An-Nisa: 29)

By considering the importance of system security and sharia compliance in shaping user loyalty, this study is directed to empirically examine the effect of system security and sharia compliance on user loyalty of sharia-based fintech applications in Indonesia. This research is expected to provide theoretical contributions in the development of literature related to user loyalty in the context of Islamic finance, as well as practical recommendations for Islamic fintech developers in increasing user trust and satisfaction on an ongoing basis.

METHODOLOGY

This study uses a quantitative method with a survey approach to examine the effect of system security and sharia compliance on user loyalty of Islamic fintech applications in Indonesia. The research population is active users of sharia-based fintech applications, such as Dana Syariah and ALAMI Sharia, with a sample of 50 respondents selected using purposive sampling technique based on age criteria, experience using the application, and types of transactions made. Data collection was carried out through an online questionnaire which was compiled based on the indicators of each variable and measured using a Likert scale of 1-5. The type of data used consists of primary data obtained directly from respondents, as well as secondary data from related literature and reports.

The research instrument was tested for validity and reliability before being widely distributed, using correlation analysis and Cronbach's Alpha, with a value of ≥ 0.70 as an indicator of good reliability. The data analysis technique uses Partial Least Square-Structural Equation Modeling (PLS-SEM) through SmartPLS version 4 software, which is suitable for small sample data and does not require normal distribution. Outer model testing was conducted to assess convergent validity, discriminant validity, and construct reliability, while the inner model was used to test the relationship between latent variables through path analysis. Hypothesis testing is based on the T-statistic value (>1.96) and p-value (<0.05) to determine the significance of the influence between variables. The relationship between variables is presented in the following figure:

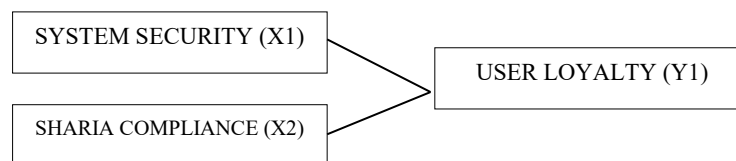


Figure 1. Research Paradigm

Description:

X_1 = System Security

X_2 = Sharia Compliance

Y = User Loyalty

RESULTS

This study involved 130 respondents who use sharia fintech applications in Indonesia with diverse characteristics. In terms of gender, the majority of respondents were male (58.5%) and the rest were female (41.5%). Based on the age range, most respondents are between 18 to 25 years old (57.7%) with the latest education level dominated by high school / vocational high school graduates as much as 39.2%. The most widely used sharia fintech application by respondents was ALAMI (23.1%), followed by Dana Syariah (20%), Investree Syariah (18.5%), and Ammana (17.7%), while the rest used other applications (20.8%). The length of use of the application is dominated by the two largest groups, namely respondents who have used the application for more than one year and for 6-12 months, each amounting to 28.5%. The research instrument used was 30 Likert-scale statements (1-5), designed to measure three main variables: system security, sharia compliance, and customer loyalty, each consisting of five indicators.

The results of the questionnaire data recapitulation show that user loyalty to the sharia fintech application is at a very high level. This is characterized by the dominance of respondents' answers on a scale of 4 and 5 to all loyalty indicators, such as frequency of use, tendency to recommend to others, level of satisfaction with the service, level of trust in the application, and conformity of services with sharia values. The same pattern is also found in the system security variable. The majority of respondents gave a positive assessment of personal data protection, encryption systems, user authentication, system availability, and application compliance with security regulations. This assessment reflects that users feel safe and trust the services provided. On the sharia compliance variable, all indicators such as contract transparency, fair profit sharing system, absence of usury, operational compliance with sharia fatwa, and the presence of a sharia supervisory board also scored high, indicating that the application has been run professionally and in accordance with sharia principles.

In testing the requirements of data analysis, the Structural Equation Modeling method based on Partial Least Square (SEM-PLS) is used which includes two main stages, namely the evaluation of the measurement model (outer model) and the structural model (inner model). The results of the outer model evaluation show that all constructs meet the criteria of convergent validity, discriminant validity, and construct reliability. This is indicated by the Composite Reliability value for System Security (0.940), Sharia Compliance (0.958), and Customer Loyalty (0.944), as well as the Average Variance Extracted (AVE) value which are all above 0.5. All outer loading values are also above 0.7, indicating that the indicators are valid in measuring the intended construct. Discriminant validity is also met through cross loading and Fornell-Larcker analysis, which shows that each indicator is stronger in measuring its origin construct than other constructs. At the inner model stage, an R-Square value of 0.794 was obtained for the Customer Loyalty variable, which means that 79.4% of the variation in loyalty can be explained by the two independent constructs, namely system security and sharia compliance. This shows that the structural model has strong predictive power.

Furthermore, the results of hypothesis testing show that both partially and simultaneously, the system security and sharia compliance variables have a positive and significant effect on customer loyalty. Partial test results through *bootstrapping* analysis show that system security has a coefficient value of 0.511 with a t-statistic of 7.633 and a p-value of 0.000, which means the effect is significant. Meanwhile, sharia compliance has a coefficient of 0.471 with a t-statistic of 5.819 and a p-value of 0.000, which is also significant. The simultaneous test shows the Fcount value of 108.32 which is much greater than Ftable 3.07, so it can be concluded that together the two independent variables have a significant effect on customer loyalty. Thus, both system security and sharia compliance are proven to play an important role in shaping user loyalty to sharia-based fintech applications in Indonesia.

DISCUSSION

Simultaneous Effect of System Security and Sharia Compliance on User Loyalty in Sharia-Based Fintech Applications

Based on the results of regression analysis and the F test, the Fcount value is 108.32, which is much greater than the Ftable of 3.07 at the 5% significance level. This shows that the System Security (X1) and Sharia Compliance (X2) variables simultaneously have a significant effect on User Loyalty (Y) in sharia-based fintech applications. This finding indicates that the combination of a reliable security system and compliance with sharia principles is an important factor in shaping user loyalty to Islamic fintech services.

In a digital era laden with cyber risks, the security aspect is the basis for users to feel protected when conducting financial activities. System security, which includes data protection, encryption systems, layered authentication, and regulatory compliance, provides a sense of security and increases user trust (Utomo & Yasirandi, 2024). On the other hand, compliance with sharia principles such as contract transparency, the prohibition of usury, and the supervision of the Sharia Supervisory Board (DPS) are important spiritual foundations for the Muslim community in choosing financial services that are in accordance with their religious values (Nuriatullah et al., 2024).

This result is in line with the study of Utomo and Yasirandi (2024), which shows that security dimensions, including privacy and operational efficiency, have a direct influence on the satisfaction and loyalty of digital wallet users in Indonesia. Meanwhile, Muhammad and Sari (2023) found that the level of compliance with sharia principles is a major determinant in building customer loyalty to Islamic banking services. In addition, Amrullah et al. (2023) stated that strong sharia compliance will strengthen the credibility and competitiveness of Islamic fintech platforms, and encourage the level of public trust in these services.

Thus, it can be concluded that the strategy to increase user loyalty in Islamic fintech applications should be directed at two main aspects, namely institutional strengthening of system security and consistency in the application of sharia principles. This integrated approach not only addresses the technical and functional needs of users, but also fulfills the spiritual dimension and religious values, which are proven to be important factors in building long-term loyalty to sharia-based financial services.

The Effect of System Security on User Loyalty in Sharia-Based Fintech Applications

The test results show that system security has a positive and significant effect on user loyalty in sharia fintech applications, characterized by a positive coefficient value and a significance level of $p\text{-value} = 0.000$. This finding is consistent with Adestyan & Rapida's research (2022), which confirms that high security perceptions strengthen user loyalty. That is, the more users rate the app as safe, the more likely they are to remain loyal and recommend it.

Utomo & Yasirandi's (2024) research adds that security aspects such as encryption and privacy play a key role in increasing digital wallet user satisfaction in Indonesia. They found that the security variable has a correlation of 0.68 and is the most dominant factor in the regression model, compared to other technology variables. Meanwhile, a study by Almaiah et al. (2023) using SEM model on m-banking application showed that security plays a significant role in shaping users' trust and continuance intention (positive β , $p < 0.05$). Conceptually, the foundation of loyalty is formed from users' trust that grows when they believe that the system protects their personal data, transactions and privacy. Without such assurance, security risks can trigger distrust and lower usage intentions. When users feel safe, they are likely to use the app regularly and recommend it to others, which directly increases loyalty is the endorsement of the experience and recommendations of the users themselves.

Therefore, strengthening technical elements-such as multi-factor authentication, end-to-end encryption, and real-time threat detection systems-is a crucial strategy for Islamic fintech app developers. Improved security directly improves users' perception of the professionalism and reliability of the platform, which in turn strengthens user loyalty and retention in the long run.

The Effect of Sharia Compliance on User Loyalty in Sharia-Based Fintech Applications

The results of data analysis show that sharia compliance has a positive and significant effect on user loyalty, as evidenced by the positive coefficient and significance $p\text{-value} = 0.000$. This finding is in line with Ramadhan (2022), Santoso & Rashidah (2022), and Nuriatullah et al. (2024), which both show that increasing sharia compliance will increase user satisfaction and loyalty. That is, the more consistently fintech service providers apply sharia principles, the stronger the loyalty formed.

The concept of sharia compliance includes the application of transparent contracts, profit-sharing systems (mudharabah, musyarakah), supervision by the Sharia Supervisory Board (DPS), and free from elements of usury and gharar. The strategy not only fulfills the religious aspect, but also builds the perception of justice, professionalism, and integrity in the eyes of users. The study by Muhammad & Sari (2023) states that in Islamic banking, the accuracy of DPS implementation and contract transparency are the main determinants of customer loyalty.

Furthermore, international research shows that sharia compliance is also a moderating factor that strengthens the relationship between quality services and loyalty. For example, Rochmad et al. (2024) found that sharia compliance strengthens the effect of E-CRM on loyalty in Jakarta Islamic banking (β significant, $p < 0.05$). Fitrihindika & Sari (2024) also found that sharia compliance is the main factor influencing e-loyalty at Bank Jago Syariah ($R^2 = 0.574$). This reinforces that the sharia dimension is not just a complement, but a central element in shaping loyalty in Islamic fintech.

Conceptually, the existence of DPS, sharia internal audit, and user education on sharia contracts and principles strengthen the perception of value and spiritual security. This creates trust and deep emotional attachment to the fintech platform. As explained by Amrullah et al. (2023), sharia compliance can increase consumer trust and fintech competitiveness in Indonesia.

Thus, to maintain and increase the loyalty of users of Islamic fintech applications, managers need to ensure that sharia compliance is not just symbolic, but comprehensive-through audits, transparency of contract quality, education, and the active role of DPS. Consistent implementation of compliance not only fulfills the legal-religious aspect, but also builds a foundation of long-term trust and service competitiveness.

CONCLUSION

Based on the results of research that has been conducted through distributing questionnaires and analyzing data using the SEM-PLS method, it can be concluded that both partially and simultaneously, the system security and sharia compliance variables have a positive and significant effect on user loyalty of sharia-based fintech applications. Partially, system security is proven to have a significant positive contribution to user loyalty, which indicates that the higher the user's perception of the security of the system used by the application, the higher their level of loyalty. Similarly, sharia compliance also shows a partially significant positive influence on loyalty, which indicates that users are more loyal to applications that are run according to sharia principles. Simultaneously, the two variables, namely system security and sharia compliance, together contribute significantly in shaping user loyalty. Thus, it can be concluded that strengthening system security aspects and consistency with sharia compliance are important factors in increasing user loyalty to sharia-based fintech services.

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