Integration of Fintech and CSR in Improving Financial Stability of Islamic Banks

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Abstract

This study examines the relationship between financial technology (Fintech), corporate social responsibility (CSR), and bank financial stability (BFS) in Islamic banks in Indonesia, with a particular focus on the role of fintech as a mediator. Using a quantitative approach, this study utilises secondary data from the annual and sustainability reports of Islamic banks listed on the Indonesia Stock Exchange (IDX) for 2021-2023. Data were analysed using the Partial Least Squares-Structural Equation Modelling (PLS-SEM) method. The results of the study show, first, that CSR has a significant direct effect on BFS and an indirect effect through fintech. Second, although the relationship between CSR and fintech is negative, fintech plays a crucial role in enhancing the financial stability of Islamic banks. Third, it was revealed that BFS does not significantly influence fintech, and although BFS does influence CSR, the mediating role in this relationship has not been proven. These findings emphasise the importance of an integrative and prudent approach in the adoption of fintech by Islamic banks. Although fintech can enhance stability, banks must continue to uphold their CSR commitments to prevent a decline in social initiatives, which could damage their long-term legitimacy and reputation. This research offers new insights into the complex interplay between social responsibility and technological innovation in Indonesia's distinct context of Islamic banking.

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Introduction

Islamic banking in Indonesia is experiencing rapid development with increasing public awareness of ethical financial principles and strong support from government regulations. With the largest Muslim population in the world, Indonesia has an excellent opportunity to occupy an essential position in the global Islamic finance industry (Hasna, 2025). This is reflected in the State of the Global Islamic Economy (SGIE) 2024/2025 report, which places Indonesia in the first position in the world overall and ranked sixth in the world in the Islamic finance category, although the market is still below 11% and far behind Malaysia, which has exceeded 40% (IAEI, 2025). However, this sector still faces several challenges, including fierce competition with conventional banks, limited access to global Islamic financial products, and the need for competent human resources. This condition requires an adaptive strategy so that Islamic banking can maintain growth and competitiveness in an increasingly complex and integrated global financial system (Fuddin et al., 2024; Yanti et al., 2024).

Digital transformation is a crucial factor that also enhances the role of Islamic banking (OJK, 2024a). The Global Islamic Fintech (GIFT) 2024/2025 report ranks Indonesia among the top three countries in the world in the sharia fintech sector, scoring 63 points, on par with the United Arab Emirates (UAE) (Kherunnisa, 2024; SKC, 2025). This growth is supported by a robust fintech

ecosystem, favourable regulations, and growing sharia-based financial inclusion (OJK, 2024b; Tricahyono et al., 2024). Fintech products, such as peer-to-peer sharia lending, halal digital payments, and ethics-based microfinance, provide wider financial access to individuals who have not previously been served by conventional banking (Irhamni et al., 2025; Widnyana & Marsudi, 2025). However, fintech developments also bring risks, such as data privacy and cybersecurity concerns, as well as the potential for a reduction in the market share of Islamic banks if not managed effectively (Az-Zahra & Miranti, 2023; Rini et al., 2023). In this regard, OJK emphasises risk-based supervision and the application of the principle of prudence in fintech development (OJK, 2024b).

The phenomenon of Islamic banking stability is gaining more attention, especially following a cyber-attack on Bank Syariah Indonesia (BSI) in 2023, which resulted in service disruptions and customer data leaks (Tech, 2023). This incident shows that customer trust can be easily compromised by digital risks, which ultimately has the potential to weaken bank stability (Azarine, 2023). To address these dynamics, a strategy that relies on adopting financial technology and integrates Corporate Social Responsibility (CSR) as a means of social and ethical responsibility in maintaining stakeholder relationships is needed. The combination of innovative fintech implementation and effective CSR management is expected to be a crucial factor in enhancing the stability of Islamic banks while enabling this stability to support the sustainable quality of CSR implementation.

Fintech is a technological innovation applied in financial services and products, which facilitates access and speeds up financial transactions practically and efficiently. Examples include digital payments, online loans, investments, and personal financial management through digital platforms (Widnyana & Marsudi, 2025). In Indonesia, fintech is growing rapidly and has covered various financial sectors, including Islamic fintech based on Islamic principles, especially in improving operational efficiency, expanding financial reach, transparency in the management of social funds (zakat, donation, and waqf), and innovation in CSR implementation (OJK, 2024a; Qur'anisa et al., 2024; Utami et al., 2024). The integration of fintech in Islamic banking is not only an operational tool but also a strategic instrument that can strengthen public trust and Bank Financial Stability (BFS) (Ngamal & Perajaka, 2022; Vergara & Agudo, 2021).

Corporate Social Responsibility (CSR) is the commitment of financial institutions to carry out activities that benefit society, the environment, and the economy sustainably (Widi et al., 2021). In Islamic banking, it not only reflects social responsibility but is also an implementation of Islamic values such as justice, sustainability, and social care (Ainy et al., 2024; Widi et al., 2021). CSR has strategic benefits, such as building the social legitimacy of banks, strengthening long-term relationships with stakeholders, and increasing competitiveness and resilience to external pressures (Dewi & Fitriani, 2024; Mahdi et al., 2023). Fintech integration makes CSR programs more measurable, transparent, and has a broader reach (Liu et al., 2021).

This study uses two main theories, namely legitimacy theory and stakeholder theory, to analyse the linkage between fintech, CSR, and BFS. Legitimacy theory is employed as a key framework due to its focus on the relationship between corporate actions and societal values, which is crucial for maintaining the sustainability and public trust in financial institutions (Dowling & Pfeffer, 1975). However, legitimacy theory has limitations in explaining in detail who the company should consider as parties and how the needs of each stakeholder are met. Therefore, stakeholder theory is used as a complementary theory to complement the understanding.

Stakeholder theory posits that companies have responsibilities to all parties affected by their activities, including employees, consumers, society, and the government (Freeman, 2010). CSR reflects a bank's social responsibility to society, while fintech responds to stakeholders' needs for efficiency, transparency, and accessibility (Mahajan et al., 2023; Shobandiyah & Rahmadhani, 2024). By integrating these two theories, this study can demonstrate that the combination of CSR and fintech meets the needs of stakeholders and serves as a crucial strategy for fostering public trust and gaining social and environmental acceptance. Islamic banks can achieve legitimacy in the eyes of the public, which supports

long-term financial stability through the strategic role of CSR and fintech in building legitimacy, public trust, and strengthening financial stability, especially in the Islamic financial sector (Mahdi et al., 2023).

Previous research has shown mixed results regarding the relationship between fintech, CSR, and BFS. Research by Mahdi et al. (2023) and Mahdi et al. (2024) demonstrate that fintech can enhance the impact of CSR on BFS by increasing efficiency and expanding services. Zhang et al. (2022) highlight the role of fintech in reducing CSR costs and improving social efficiency. However, studies by Liu et al. (2021) and Rocha and Christopoulos (2023) demonstrate that fintech does not always contribute positively to CSR or bank stability, particularly when there is no strategic integration and inadequate risk management readiness. Other findings from Safiullah and Paramati (2022) and Daud et al. (2022) demonstrate that BFS is crucial in promoting sustainable and responsible financial technology adoption.

The results of this study make a significant contribution to the literature by offering three main novelties. First, the study integrates Legitimacy Theory and Stakeholder Theory to provide a conceptual framework that explains the dual role of fintech and CSR adoption in achieving legitimacy and meeting stakeholder demands. Second, this study differs from previous studies in that it examines the role of fintech as a mediating variable reciprocally linking CSR and financial stability. This relationship is still rarely studied. Third, this research focuses on the specific context of Islamic banking in Indonesia. This area remains underexplored, offering more relevant and practical insights for regulators and managers of Islamic banks. This research is expected to provide a basis for Islamic bank management in formulating a balanced strategy between fintech development and the implementation of CSR activities. Banks need to ensure that fintech adoption does not compromise their long-term social and environmental commitments, for example, by integrating digital features to mitigate social impacts, strengthening platform-based green financing, and developing Sharia-based inclusive services. Banks can implement policies and financial authorities by encouraging incentives for banks that successfully adopt fintech. It enables them to maintain the quality of Corporate Social Responsibility (CSR) through Environmental, Social, and Governance (ESG)-based supervision schemes integrated with technology and social performance indicators.

Literature Review

Legitimacy Theory

Legitimacy theory posits that organisations must adapt their policies and actions to align with prevailing social values in order to garner public acceptance (Dowling & Pfeffer, 1975). In the context of Islamic banking, the application of fintech reflects a response to the demands of modernisation and transparency. (Vergara & Agudo, 2021; Widnyana & Marsudi, 2025). Meanwhile, CSR provides a moral outlook that strengthens positive perceptions of institutions, primarily through involvement in social programs, financial education, and economic empowerment. (Silva, 2021). The integration of the two forms an alignment between innovation and social values, strengthening the institution's reputation, lowering risk, and promoting long-term financial stability (Mahdi et al., 2023).

Stakeholder Theory

Stakeholder theory posits that companies are responsible not only to shareholders, but also to all parties affected by their activities, including employees, consumers, governments, society, and the environment (Freeman, 2010). In Islamic banking, stakeholder orientation is important to maintain public legitimacy and trust, primarily through CSR and fintech adoption (Freeman & Velamuri, 2023). CSR strengthens social relationships, while fintech improves service efficiency and transparency (Shobandiyah & Rahmadhani, 2024; Widnyana & Marsudi, 2025). Therefore, this theory is the basis for understanding the role of CSR and fintech in supporting Islamic financial institutions' financial stability and sustainability.

CSR and Fintech

Companies that consistently implement CSR not only improve their reputation but also strengthen relationships with a broader range of stakeholders, including in the digital ecosystem (Dewi & Fitriani, 2024). According to Stakeholder theory, as presented by Freeman and Velamuri (2023) suggest that companies must balance the interests of all parties affected by their operations. In fintech, CSR is a strategic tool for creating trust in financial technology services that are still developing. Research by AlQudah et al. (2024) demonstrate that CSR can drive responsible fintech adoption and foster mutually beneficial collaboration between providers and users. Liu et al. (2021) and Merello et al. (2022) stated that when the CSR dimension is symbolic or administrative, there will be less expenditure on CSR activities, thereby convincing stakeholders that banks will increase funding in technology development. Therefore, CSR activities must be able to balance the bank's fintech development. Low CSR funding indicates a lack of funding to improve technology. As such, CSR is highly dependent on the quality and relevance of the programs carried out and adequate institutional support that can prioritise investment for the development of financial technology. The lower the bank's CSR activities, the higher the level of fintech implementation development.

H1. CSR has a negative effect on Fintech

BFS and Fintech

Financially stable conditions give banks room to invest in technological innovations, including fintech development (Widnyana & Marsudi, 2025). Financial stability reflects good risk management, accountable governance, and sound capital structures, all of which are essential foundations for digital expansion (Mu et al., 2023). According to Mahajan et al. (2023), stakeholder theory holds that companies are responsible for creating value for all stakeholders, and financial stability allows them to fulfill these expectations consistently. Fang and Wen (2024) further suggest that financially stable banks are more likely to collaborate with fintech providers. Research by Safiullah and Paramati (2022) demonstrate that BFS strengthens the digital finance ecosystem through mutually beneficial partnerships. Ferilli et al. (2024) It was also revealed that good governance encourages collaboration between banks and fintech to mitigate systemic risks. Nonetheless, the effect of BFS on fintech depends on regulatory readiness and market structure, where overly conservative banks can be a barrier to fintech adoption. Thus, financial stability is an important prerequisite, but it is not enough without the support of innovative adaptive strategies.

H2. BFS has a positive effect on Fintech

CSR and BFS

Corporate Social Responsibility is a non-financial tool that strengthens the relationship between banks and stakeholders, while enhancing the long-term resilience of financial institutions. From a stakeholder perspective, CSR represents a commitment to meeting various parties' social, economic, and environmental expectations (Freeman & Velamuri, 2023). Dewi and Fitriani (2024) emphasised that implementing strategic CSR can increase the bank's positive image and strengthen its attachment to the community. Improving the image will build public trust, expand the customer base, and attract investor support (Fadillah et al., 2023). Meanwhile, engagement with the community strengthens the bank's social legitimacy, reduces potential conflicts, and creates more stable long-term relationships (Mujib, 2025). The combination of the two indirectly contributes to increasing the bank's stability. In line with this, empirical research conducted by Orazalin et al. (2019), Ramzan et al. (2021), and Mahdi et al. (2024) confirms the positive relationship between CSR and financial stability. Therefore, the success of CSR in improving BFS is highly dependent on the extent to which the program is designed, considering the bank's long-term strategic interests.

H3. CSR has a positive effect on BFS

BFS and CSR

Strong financial capabilities provide flexibility for banks to run social responsibility programs more optimally (Doroshenko & Shynkarenko, 2024). The legitimacy theory perspective explains that organisations will conform to public norms and expectations to gain social recognition, and financial stability is an important capital for designing consistent and impactful CSR programs (Dowling & Pfeffer, 1975; Mahdi et al., 2023). Such stability allows for greater allocation of resources for sustainable programs that are not only symbolic but also strategic (Junaidi et al., 2025). Empirical research conducted by Mahdi et al. (2024) and López and González (2020) found that banks with high solvency are more active in implementing CSR. Instead, Gaies and Jahmane (2022) found no evidence that financial stability automatically leads to increased CSR, suggesting that this relationship depends on a company's strategic orientation and social commitment. Thus, the effect of BFS on CSR can be positive, but it does not automatically occur without the integration of social values in the bank's business planning (Hojer & Mataigne, 2024; Saadaoui & Salah, 2022). Thus, BFS positively impacts CSR by enabling banks to incorporate social values into their business strategies.

H4. BFS has a positive effect on CSR

Fintech and BFS

Digital transformation through fintech is a key strategy for banks to improve efficiency, expand access, and manage financial risks (Widnyana & Marsudi, 2025). Stakeholder theory places technological innovation as a form of response to stakeholders' demands for fast, transparent, and inclusive financial services (Fuster et al., 2019). Fintech provides tools to reduce operational costs, improve credit management with big data and Artificial Intelligence (AI), and reach previously underserved market segments, all of which contribute directly to the bank's financial stability (Qur'anisa et al., 2024). Empirical research by Kamal et al. (2022) and Ferilli et al. (2024) demonstrate that adopting fintech enhances bank stability through increased efficiency and improved risk management. This strengthening occurs because fintech enables banks to streamline processes, reduce errors, and make more informed decisions based on data analytics, collectively mitigating risks and improving profitability. Therefore, integrating fintech is a technological upgrade and a strategic necessity for sustaining financial health in a competitive and evolving banking environment.

H5. Fintech has a positive effect on BFS

Fintech and CSR

The development of fintech enables banks to fulfil their social roles more broadly and effectively (Mahdi et al., 2023). Legitimacy theory posits that the adoption of technologies that enhance inclusion, efficiency, and frugality can be offset by reducing the acceptance of social activities in financial institutions (Badjuri et al., 2021). Fintech capabilities that enable financial access for underserved groups can reduce the use of sustainable products, such as green loans, and increase the transparency and accountability of CSR programs (Qur'anisa et al., 2024). Research by Liu et al. (2021) and Rocha and Christopoulos (2023) demonstrates that fintech can undermine CSR activities without a strong social commitment. A dependence on too substantial technology risks reducing the intensity and quality of humanist and participatory CSR activities. Thus, the higher the bank's application or use of fintech, the lower the involvement or expenditure of funds for CSR.

H6. Fintech has a negative impact on CSR

CSR and BFS: The Mediating Role of Fintech

Integrating CSR and fintech forms a strategic synergy in achieving sustainable financial stability (Doroshenko & Shynkarenko, 2024). CSR contributes to building trust and social legitimacy, while fintech serves as a channel that amplifies the impact of CSR into more concrete financial services (Łasak & Gancarczyk, 2021; Mujib, 2025). From the stakeholder theory perspective, fintech acts as an

intermediary that translates social values into products and services accessible to the public (Shobandiyah & Rahmadhani, 2024; Widnyana & Marsudi, 2025). In other words, CSR fosters the emergence of social innovation, and fintech provides technological tools to realise these innovations in the form of inclusive, efficient, and transparent financial services. Research by Mahdi et al. (2023) and Mahdi et al. (2024) shows that fintech can mediate the effect of CSR on BFS through digitalisation mechanisms, microfinance services, social payments, and green financing. These initiatives enable the social value of CSR to be translated into stronger financial performance, ultimately enhancing the bank's stability. Thus, CSR not only directly impacts legitimacy but also indirectly increases BFS through the adoption of fintech as a strategic bridge.
H7. Fintech mediates the CSR relationship with BFS

BFS and CSR: The Mediating Role of Fintech

Financial resilience allows banks to innovate in social programs, but the impact will be maximised when facilitated by technology (Doroshenko & Shynkarenko, 2024). Fintech enables banks to channel excess financial capacity into CSR activities that are more responsive, transparent, and wide-reaching (Vergara & Agudo, 2021). The perspective of legitimacy theory suggests that fintech serves as a medium to fulfil social commitments that align with people's expectations, thereby increasing institutional acceptance of banks (Dowling & Pfeffer, 1975; Widnyana & Marsudi, 2025). Studies by Mahdi et al. (2023) and Vergara and Agudo (2021) show that fintech can facilitate a more strategic implementation of CSR through inclusive digital financial services, technology-based donation platforms, and sustainable products. Therefore, fintech plays an important role in connecting BFS with CSR implementation.
H8. Fintech mediates BFS's relationship with CSR

Research Method

This study employs a quantitative approach, utilising secondary data from the annual and sustainability reports of Islamic financial companies listed on the Indonesia Stock Exchange (IDX) from 2021 to 2023. Sample selection was conducted using the purposive sampling method, based on the following criteria: the company was registered during the observation period, both reports were consistently published, and complete data were provided for variable analysis purposes. All information is collected online through the IDX's official and related company websites.

Operational Definitions of Variables

Financial technology (Fintech) in this study is defined as digital innovation in the financial sector, which includes the development of core technologies, system infrastructure, analytics and artificial intelligence, blockchain, interactive digital interfaces, as well as data security, supported by synergies between industry players (Khan et al., 2024; Kharrat et al., 2024). The measurement of fintech variables was conducted through text mining of the bank's annual report, utilising six key dimensions (see Table 1). The total frequency of keywords is calculated per bank and normalised to the average frequency of all banks in the same year. Higher index values indicate greater fintech development. The calculation formula is:

$$Fintech = \frac{Text\ Mining\ Amount}{Average\ Text\ Mining\ Across\ Companies}$$

Corporate social responsibility (CSR) is a form of corporate responsibility that positively contributes to the community and the surrounding environment (Fauzi & Manao, 2023). In this study, CSR expenditure (CSRex) encompasses expenditures related to social, economic, and environmental aspects of corporate social responsibility. The expenditure from these three elements was used as a quantitative indicator and measured by the GRI sustainability reporting guidelines. G4 Indonesian version (Rahmadhani et al., 2023). For analysis, the CSRex value is transformed using a natural logarithm

(Ln) to normalise the distribution of financial data, which tends to be large-scale and varies significantly between banks. This normalisation makes the estimation results more stable and meets statistical assumptions. CSR is measured through the formula:

$$CSRex = Ln\ (CSRex)$$

Table 1. Dimensions of Fintech Indicators

Dimension	Indicator
1. Core Technology and Infrastructure	Technology, Database, Internet, Web, and Open API (Application Programming Interface).
2. Analytics and Artificial Intelligence	AI (Artificial Intelligence), Machine Learning, Customer Journey Mapping, Predictive Analytics, and Robotic Process Automation.
3. Financial and Blockchain Innovation	Blockchain, Smart Contracts, Alliance Chain, Test Chain, and Cloud Finance
4. Customer Experience and Interface	Phone, Email, Credit Card, ATM, Mobile App, 24/7 Customer Support, and Virtual Cards.
5. Security and Authentication	Cyber Security, Cyberattacks, Biometric Authentication, Face Recognition, and Fingerprint Recognition.
6. Partnerships and Ecosystems	Fintech Startup, Strategic Alliances, Venture Capital Investments, and Co-Creation Projects.

Bank Financial Stability (BFS) refers to the ability of a bank to withstand economic and financial pressures without experiencing failure (Alfiyan et al., 2023). This stability is measured using the Z-score index, which reflects the bank's risk of bankruptcy. This Z-score can reflect the risk of bankruptcy by considering profitability, capital adequacy, and profit volatility. A high Z-score indicates that the bank has a relatively safe distance before defaulting, making it a valuable indicator of its resilience to economic and financial pressures. Although the Financial Sector Indicators (FSIs) of the IMF offer a more comprehensive framework, this study does not utilise them because the FSI focuses more on the macroprudential stability of the financial system, rather than on the individual bank level, which is the primary focus of this study. The Z-score approach is adequate to assess the risk profile of sharia-based banks, especially for internal comparisons with uniform data standards, through the formula:

$$Zscore = \frac{ROA + CAR}{\sigma(ROA)}$$

where ROA is the Return on Assets, CAR is the Capital Asset Ratio, and σ(ROA) is the standard deviation of the ROA. The higher the Z-score, the less likely a bank is to fail.

This study also controlled for several variables. The age of the bank is measured by the difference between the year of observation and the year of the bank's inception, reflecting the accumulated operational experience (Orazalin et al., 2019). Bank size is measured using the natural logarithm of total assets, which plays a role in determining operational capacity and competitiveness (Maqbool & Hurrah, 2021). The inflation rate is measured using dummy variables, where a value of zero indicates no influence and a value of one indicates sensitivity to inflation (Zhang & Zhou, 2025). The model explicitly uses two independent control variables involving CSR: net interest margin (NIM) and loan loss provision (LLP). NIM measures a bank's net profitability as the difference between income and interest expense, which is then divided by total assets (Puspitasari et al., 2021). Meanwhile, LLP is a fund set aside by banks to anticipate credit impairment losses and is measured by comparing credit loss reserves to total credit (Mahdi et al., 2023).

Data analysis was conducted using SmartPLS 3.0 with the PLS-SEM approach, which enables the testing of complex direct and indirect relationships among variables within a single model. Baron and Kenny (1986) compared standard regression to PLS-SEM; PLS-SEM is superior as it handles independent, mediator, and dependent variables simultaneously. The study also employed the Two-Stage Least Squares (2SLS) method to ensure robustness, given the potential endogeneity between CSR,

Fintech development, and bank financial stability (BFS). Endogeneity risks, such as two-way causality and omitted variables, may bias estimates in ordinary regression. In 2SLS, endogenous variables (CSR and Fintech) are instrumented with their lagged values (t−1), assumed to correlate with the variables but not with the error term. This approach produces more consistent estimates and reinforces the validity of the findings. Figure 1-3 visualizes the relationship between variables in this study.

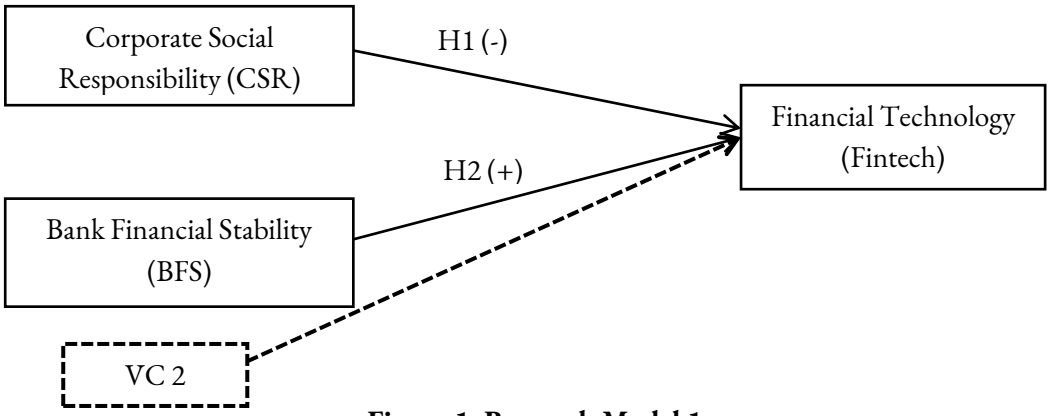

Figure 1. Research Model 1

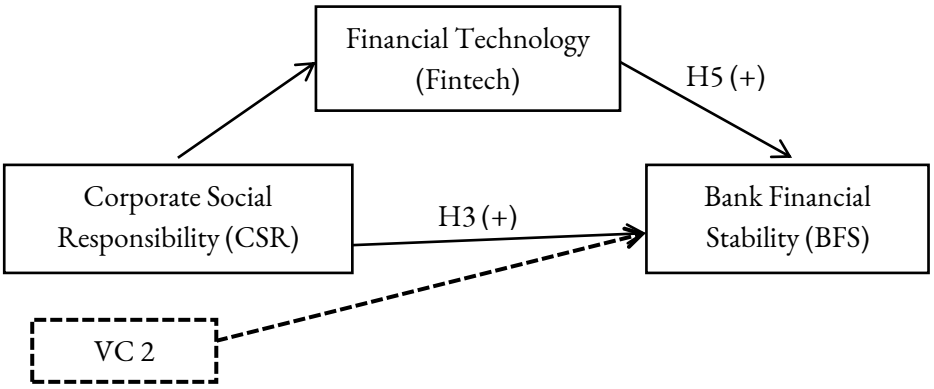

Figure 2. Research Model 2a

VC 2: bank age, bank size, inflation rate, NIM, and LLP

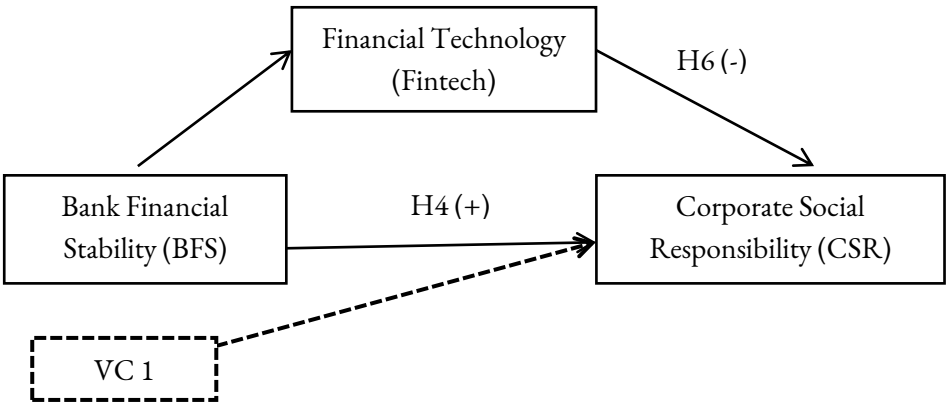

Figure 3. Research Model 2b

VC 1: bank age, bank size, and inflation rate

The equation models developed in this study are as follows.
Model 1: The effect of CSR and Bank Financial Stability on Fintech

$$Fintech = \beta_0 + \beta_1 CSR + \beta_2 Zscore + \beta_3 NIM + \beta_4 LLP + \beta_5 AGE + \beta_6 SIZE + \beta_7 INF + \varepsilon \quad (1)$$

Model 2a: The Effect of Fintech Mediation on the effect of CSR on Bank Financial Stability

$$Fintech = \alpha_0 + \alpha_1 CSR + \alpha_2 NIM + \alpha_3 LLP + \alpha_4 AGE + \alpha_5 SIZE + \alpha_6 INF + \varepsilon \quad (2)$$

$$Zscore = \beta_0 + \beta_1 CSR + \beta_2 Fintech + \beta_3 NIM + \beta_4 LLP + \beta_5 AGE + \beta_6 SIZE + \beta_7 INF + \varepsilon \quad (3)$$

Model 2b: The Effect of Fintech Mediation on the effect of Bank Financial Stability on CSR

$$Fintech = \alpha_0 + \alpha_1 Zscore + \alpha_2 AGE + \alpha_3 SIZE + \alpha_4 INF + \varepsilon \quad (4)$$

$$CSR = \beta_0 + \beta_1 Zscore + \beta_2 Fintech + \beta_3 AGE + \beta_4 SIZE + \beta_5 INF + \varepsilon \quad (5)$$

Description: CSR: CSR; Zscore: Bank Financial Stability; Fintech: Financial Technology; AGE: Bank Age; SIZE: Bank size; INF: Inflation Rate; NIM: Net Interest Margin; LLP: Loan Loss Provision.

Results and Discussion

The descriptive statistics in Table 2 indicate that the average fintech value of 1.77, with a standard deviation of 0.42, suggests that most Islamic banks in the sample have adopted financial technology evenly. The average CSR of 23.01 and the standard deviation of 3.35 indicate that the implementation of corporate social responsibility is carried out consistently between banks. Meanwhile, the BFS showed an average value of 88.27 with a standard deviation of 46.89, indicating a considerable difference in the level of financial stability among banks.

Table 2. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	St. Deviation
BFS	116	20.79	275.18	88.27	46.89
CSR	116	14.63	29.75	23.01	3.35
Fintech	116	1.00	2.00	1.77	0.42
Age	116	12.00	128.00	53.57	23.08
Size	116	16.01	35.32	31.00	3.70
INF	116	0.00	1.00	0.82	0.39
NIM	116	0.78	12.20	4.77	1.91
LLP	116	0.01	11.72	1.74	2.11

Source: Secondary data processed (2025)

Control variables, such as age and bank size, exhibited considerable variation, with an average age of 53.57 years and a logarithm of assets of 31.00, respectively. Financial and macro variables also varied, including INF, NIM, and LLP. The results show a stable average value. Overall, the data used in this study are representative and adequately varied, making them suitable for testing the relationships between variables in structural models.

In the evaluation stage of the measurement model (outer model), convergence validity and reliability were assessed through tests of the construct using outer loading, Average Variance Extracted (AVE), Cronbach's alpha, and Composite Reliability. The analysis results show that the entire construct has a value of 1. Although these values statistically meet the criteria for convergent validity (outer loading > 0.7; AVE > 0.5) and construct reliability (α and CR > 0.7) for secondary data, as recommended by Hair et al. (2021), the uniform and maximum results should be interpreted with caution. A perfect score of 1 for all reliability and validity metrics may indicate that each construct is measured by only one indicator or substantial duplication and redundancy among the indicators.

The validity of the discriminant has also been established, as evidenced in Table 3, which shows the value of the Heterotrait-Monotrait Ratio (HTMT) between constructs, all below the threshold of

0.90. Thus, it can be concluded that each construct in the model can be discriminated and does not overlap with any other constructs.

Table 3. Results of the Discrimination Validity Test

Variable	BFS	CSR	Fintech	Age	Size	INF	NIM	LLP
BFS	1							
CSR	0.117	1						
Fintech	0.117	0.772	1					
Age	0.078	0.182	0.185	1				
Size	0.065	0.173	0.031	0.102	1			
INF	0.125	0.062	0.066	0.055	0.156	1		
NIM	0.225	0.240	0.153	0.384	0.210	0.040	1	
LLP	0.122	0.046	0.012	0.198	0.184	0.081	0.005	1

Source: Secondary data processed (2025)

Based on the analysis results in Table 4, all Variance Inflation Factor (VIF) values for independent variables are below the multicollinearity tolerance threshold of < 5. The highest VIF value was recorded in the CSR variable for BFS at 3,037 and fintech at 2,831, which is still within safe limits. Thus, it can be concluded that there is no significant indication of multicollinearity in the regression model used.

Table 4. Variance Inflation Factor (VIF) Test Result

Variable	BFS	CSR
BFS	-	1.037
CSR	3.037	-
Fintech	2.831	1.058
Age	1.304	1.053
Size	1.308	1.038
INF	1.055	1.048
NIM	1.396	
LLP	1.076	

Source: Secondary data processed (2025)

Testing of the structural model (inner model) in Table 5 was conducted to determine the magnitude of influence between constructs in the research model. The evaluation was conducted by considering the value of the determination coefficient (R^2), t-statistics, p-values, and the direction of the path coefficient. In Model 1, the analysis showed that CSR had a negative but significant influence on fintech, with a path coefficient of -0.772 and a t-statistic of 22.760 ($p < 0.001$). Meanwhile, the effect of BFS on fintech was not significant, as indicated by the p-value of 0.419. An R^2 value of 0.596 indicates that CSR and BFS can explain 59.6% of the variations in fintech.

In Model 2a, it was found that CSR had a significant influence on BFS ($t = 4.092$; $p < 0.001$), as did fintech ($t = 3.080$; $p = 0.002$). The analysis results also showed a significant mediating effect in the relationship between CSR and bank financial stability, with a value of p=0.003. An R^2 value of 0.316 indicates that combining CSR and fintech can explain 31.6% of BFS variation. Furthermore, in Model 2b, both BFS and fintech were found to have a significant direct influence on CSR ($p < 0.001$ for both). However, the fintech mediation pathway in the relationship between BFS and CSR was not significant ($p = 0.433$), so the role of mediation was not established. An R^2 value of 0.697 indicates that 69.7% of CSR variations can be explained by BFS and fintech, indicating the model's predictive power is relatively high.

Table 5. Results of Hypotheses Testing

Hypothesis	Coefficient	T-Statistic	P-Value	Decision
Model 1				
CSR → Fintech	-0.772	22.760	0.000	Supported
BFS → Fintech	0.117	0.809	0.419	Not supported
R2	0.596			
Adjusted R^2	0.593			
Model 2a				
CSR → BFS	0.818	4.092	0.000	Supported
Fintech → BFS	0.727	3.080	0.002	Supported
CSR → Fintech → BFS	-5.561	2.966	0.003	Supported
R^2	0.316			
Adjusted R^2	0.276			
Model 2b				
BFS → CSR	0.240	3.704	0.000	Supported
Fintech → CSR	-0.809	16.107	0.000	Supported
BFS → Fintech → CSR	-0.095	0.785	0.433	Not supported
R^2	0.697			
Adjusted R^2	0.685			

Source: Secondary data processed (2025)

Robustness Analysis

To ensure the durability of the findings, this study conducted an additional test using the Two-Stage Least Squares (2SLS) method. This method was chosen due to the potential for endogeneity resulting from the reciprocal relationship between CSR, Fintech, and bank financial stability (BFS). The diagnostic results showed that the instrument used, the endogenous variable lag (t−1), proved relevant and valid. The Kleibergen–Paap rk F value is 10.2–14.8, greater than the critical threshold, so the instrument is not classified as weak. The Durbin–Wu–Hausman (DWH) test confirms that Fintech and CSR are indeed endogenous ($p < 0.05$), indicating that the 2SLS approach is necessary. Meanwhile, the Hansen J test yielded a p-value of 0.27–0.42, which confirmed that the instrument used was valid. Thus, the results of the 2SLS estimation can be considered reliable for testing the robustness of the relationship between variables. The test results are in tables 6, 7, and 8.

Table 6. Instrument Diagnostic Summary (2SLS)

Equation	Variable endogenous	Kleibergen–Paap rk LM (p)	Kleibergen–Paap rk F	Shea Partial R^2
BFS ← Fintech	Fintech	18.2 (0.000)	14.8	0.21
CSR←Fintech	Fintech	12.4 (0.001)	11.5	0.17
Fintech←CSR	CSR	11.1 (0.001)	10.2	0.15

Source: Secondary data processed (2025)

Table 7. Endogeneity and Instrument Validity Test

Equation	DWH p-value	Hansen J χ^2 (p)	Information
BFS ← Fintech	0.02	1.04 (0.31)	Fintech endogenous; Valid instruments
CSR←Fintech	0.04	1.21 (0.27)	Fintech endogenous; Valid instruments
Fintech←CSR	0.03	0.95 (0.42)	CSR endogenous; Valid instruments

Source: Secondary data processed (2025)

Table 8. Robust Inference Test Results

Equation	2SLS Coefficient	95% CI (AR)	95% CI (CLR)	LIML Coefficient	Information
BFS← Fintech	+0.152**	[0,045; 0.251]	[0,038; 0.243]	+0.149**	Consistency between methods
CSR←Fintech	-0.084**	[-0,152; -0.029]	[-0,0147; -0.024]	-0.082**	Consistency between methods
Fintech←CSR	+0.097**	[-0,186; -0.041]	[-0,0179; -0.036]	-0.095**	Consistency between methods

Estimation using 2SLS with the endogenous variable lag as an instrument. The Anderson–Rubin confidence interval (AR) and the Conditional Likelihood Ratio (CLR) were consistent with the main results. LIML estimation produces coefficients with the same direction and significance. **p < 0.05; ***p < 0.01.

Discussion

The Effect of Corporate Social Responsibility (CSR) on Financial Technology (Fintech)

The test results in Table 5 show that the first hypothesis is statistically acceptable. It indicates that CSR significantly influences fintech, with a negative relationship (coefficient -0.772; t-statistic 22.760; p < 0.001). It suggests that low CSR spending in Islamic banks may lead to a decrease in the development of financial technology. In other words, the lack of funds allocated for CSR further increases the proportion of investment in the fintech aspect. It can happen because Indonesian Islamic banks prioritise resource allocation for the benefit of digital investment. Results align with the views of Liu et al. (2021) and Merello et al. (2022), which suggests that not all forms of CSR benefit technological development, especially when CSR is symbolic or administrative. CSR in Indonesian Islamic banks is allocated a lower budget than digital transformation, which can lead to increased fintech projects. Therefore, strategic integration of CSR and technological innovation in Islamic banking in Indonesia is important so that the two reinforce each other, not replace each other.

The Effect of Bank Financial Stability on Financial Technology

The test results showed that the second hypothesis was not statistically supported. The coefficient value of 0.117 with a t-statistic of 0.809 and a p-value of 0.419 indicates that BFS does not significantly affect fintech. It means that banks' financial stability level cannot be used as the main predictor of the level of adoption or development of financial technology in Islamic banks. This condition shows that even if the bank is stable financially, it does not automatically encourage investment or collaboration with fintech platforms. These findings are not in line with the stakeholder theory proposed by Mahajan et al. (2023) or previous research. Safiullah and Paramati (2022) and Fang and Wen (2024) State that financial stability strengthens digital collaboration. However, these results reinforce the view that financial factors alone are insufficient to drive technological innovation unless accompanied by structural and regulatory readiness (Nguyen, 2022). Focusing on compliance and operational prudence in Islamic banking can render digital transformation a low priority, even when achieving financial stability.

The Effect of Corporate Social Responsibility (CSR) on Bank Financial Stability

The test results showed that the third hypothesis was statistically supported, with a coefficient of 0.818, a t-statistic of 4.092, and a p-value of 0.000. It means that CSR has a significant positive effect on BFS. It means that the greater the bank's attention and expenditure on corporate social responsibility, the greater the level of financial stability. It indicates that implementing strategic and measurable CSR plays a role in strengthening Islamic banks' institutional position and resilience to external pressures. It supports the stakeholder theory, emphasizing that companies that respond to social expectations will gain legitimacy and support from stakeholders (Freeman & Velamuri, 2023). Previous research by Ramzan et al. (2021) and Mahdi et al. (2024) also revealed that CSR positively contributes to financial stability, primarily when supported by sustainable governance. Therefore, CSR is not only a philanthropic activity, but also

a strategic investment in maintaining good relations with the public and regulators, which leads to increased security for financial institutions.

The Effect of Bank Financial Stability on Corporate Social Responsibility (CSR)

The test results in Table 5 support the fourth hypothesis, with a coefficient of 0.240, a t-statistic of 3.704, and a p-value of 0.000. It shows that BFS has a significant positive effect on CSR. Banks with higher financial stability tend to have greater capacity to implement corporate social responsibility programs. This stability provides fiscal space and managerial flexibility to support CSR initiatives on a sustainable basis. These findings are consistent with the theory of legitimacy, which states that organisations will be better able to adapt to social demands when they have financial strength (Dowling & Pfeffer, 1975). Research from Mahdi et al. (2024) and López and González (2020) reinforce the notion that the bank's solvency necessitates allocating social program funds. However, Gaies and Jahmane (2022) noted that funds alone are insufficient if a strategic orientation towards social values does not accompany them. Thus, financial stability is only the starting point that needs to be combined with a commitment to produce effective CSR programs.

The Effect of Financial Technology (Fintech) on Bank Financial Stability

The results support the fifth hypothesis, with a coefficient value of 0.727, a t-statistic of 3.080, and a p-value of 0.002. It shows that fintech has a significant positive effect on BFS. It means that Islamic banks' adoption of financial technology has a direct impact on increasing their financial stability. Implementing fintech supports cost efficiency, expanded access to services, and enhanced risk management systems, strengthening banks' financial resilience. These results are in line with stakeholder theory, which sees technological innovation as a response to the market's need for fast and inclusive financial services (Fuster et al., 2019). Research by Kamal et al. (2022) and Ferilli et al. (2024) demonstrate that fintech can enhance bank stability by reducing operational costs and enhancing the accuracy of risk analysis. However, fintech's benefits depend highly on institutions' strategic readiness to implement technology systems. Therefore, the success of fintech as a BFS booster requires long-term planning and a reliable digital governance system.

The Effect of Financial Technology on Corporate Social Responsibility (CSR)

The sixth hypothesis is statistically supported, with a coefficient of -0.809, a t-statistic of 16.107, and a p-value of 0.000, indicating a negative relationship between fintech adoption and CSR implementation. It means that banks that focus on developing fintech tend to reduce the intensity of their social responsibility programs. It indicates a trade-off between allocating resources for digitalisation and maintaining structured social commitments. These results are based on the legitimacy theory, which assumes that the efficient adoption of technology requires a balance between decreasing the acceptance of institutional social activities and increasing the acceptance of technological innovations (Badjuri et al., 2021). Some studies conducted by Liu et al. (2021) and Rocha and Christopoulos (2023) reinforce this negative result, suggesting that fintech adoption can increase transparency, making banking CSR activities more accepted, even with limited funding. The findings also reflect potential strategic conflicts in managing banks' resources, where a focus on digital efficiency tends to shift the emphasis away from long-term social goals. Additionally, an overly automated approach to technology can diminish direct social interaction, a crucial element in the success of community-based CSR activities.

The Effect of Financial Technology Mediating the Relationship between Corporate Social Responsibility (CSR) and Bank Financial Stability

Mediation test results in Table 5 showed that fintech significantly mediated the relationship between CSR and BFS, with a mediation coefficient value of -5.561, a t-statistic of 2.966, and a p-value of 0.003. It suggests that, although the direction of CSR's influence on fintech is negative, the presence of fintech

continues to strengthen the indirect impact of CSR on BFS. It means that CSR can have a greater impact on BFS banks if supported by efficient financial technology. These results support the stakeholder theory and the results of the study by Mahdi et al. (2023) and Mahdi et al. (2024) place fintech as a medium for channelling CSR values into a broader, measurable system. Products such as digital microfinance, green lending, and digital donations are concrete examples of how technology expands the impact of CSR. Thus, even though the direct relationship between CSR and fintech is negative, the use of fintech still plays a role in enhancing financial stability, making the role of fintech mediation a strategic stage.

The Effect of Financial Technology Mediating the Relationship between Bank Financial Stability and Corporate Social Responsibility (CSR)

The mediation test results in Table 5 indicate that the eighth hypothesis is not statistically supported. The mediation coefficient value of -.095, with a t-statistic of 0.785 and a p-value of 0.443, indicates that fintech does not mediate the relationship between BFS and CSR. It means that even though banks have stable financial conditions, it has not encouraged using fintech to strengthen the implementation of CSR programs. In other words, financial stability has not been optimally directed to support social innovation through financial technology. These findings contradict the legitimacy theory, emphasizing the importance of organisations adapting to public norms and expectations to gain social recognition. This process can be facilitated through the use of technology in CSR (Dowling & Pfeffer, 1975). Mahdi et al. (2023) and Vergara and Agudo (2021) affirmed that fintech has the potential to strengthen the relationship between BFS and CSR, primarily through increased efficiency, transparency, and broader social reach. Thus, the study's results indicate a gap in practice, specifically that financial stability in Islamic banking has not been entirely directed towards supporting technology-based social innovation.

Conclusion

This study aims to examine the relationship between Financial Technology (Fintech), Corporate Social Responsibility (CSR), and Bank Financial Stability (BFS) in Islamic banks in Indonesia, with a focus on the role of fintech as a mediator. The study results show that CSR significantly affects BFS directly and indirectly through fintech. However, the relationship between CSR and fintech points in a negative direction, indicating that increased allocation for social activities has not always been accompanied by strengthening digital investment. On the other hand, fintech has been proven to be able to increase BFS, although financial stability does not have a significant effect on fintech development. Other findings indicate that BFS impacts CSR, and fintech does not mediate the relationship between BFS and CSR.

These results support the relevance of stakeholder theory and legitimacy, which explain the importance of integrating social values and technological innovation in strengthening Islamic bank institutions. CSR has proven to be a strategic instrument in building social legitimacy and increasing financial resilience. Fintech plays a role in reinforcing efficiency and accessibility, but its use must be further directed to support the bank's overall social sustainability agenda.

This study has some limitations because the fintech indicators used are still relatively simple and therefore do not fully capture the complexity of technology adoption. Likewise, CSR is still reflected through total CSR spending, allowing future research to detail expenditure in each element, namely social, environmental, and economic. The results of the outer model, which show perfect values on all indicators, also indicate limitations in the measurement instruments, particularly due to the use of a single engineer for each construct. It can limit the richness of information and the overall accuracy of the model's estimation. For this reason, further research is recommended to utilize longitudinal data and more representative technology indicators and expand the scope of research objects to other financial institutions to obtain a more comprehensive understanding. This research provides valuable insights for bank management, particularly for Bank Sagar, on aligning financial stability with social innovation through adopting fintech. In terms of policy, this study emphasises the importance of a regulatory

framework that encourages synergy between CSR and fintech to strengthen Indonesia's Islamic banking industry's sustainability and resilience.

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