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RESEARCH ARTICLE

The Role of Governance and Digital Transformation in Enhancing Operational Sustainability of Non-Banking Financial Institutions

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ARTICLE INFO	ABSTRACT
	This paper investigates the determinants of operational sustainability in Non-Banking Financial Institutions (NBFIs), with a specific focus on governance, digital transformation, business model diversification, cost management, and macroeconomic factors. Using regression analysis, the study identifies the significant role of governance and digital transformation in driving sustainability, highlighting their strong positive influence on operational efficiency. These findings underscore the importance of adopting robust governance frameworks and embracing technological advancements in response to the evolving financial landscape. The research further examines the impact of business model diversification, which shows a moderate but positive effect on sustainability. This suggests that expanding service offerings can enhance the income-generating potential of NBFIs, provided such strategies are carefully managed. However, cost management revealed a minimal impact on sustainability, challenging traditional assumptions that financial efficiency is a key determinant of success in the sector. Overall, the paper contributes to the existing literature by validating the importance of governance and digital transformation while providing new insights into the dynamic relationship between business strategies and operational sustainability in NBFIs. The findings highlight the necessity for these institutions to adapt their management practices to align with technological and market changes for long-term viability.

INTRODUCTION

Non-Banking Financial Institutions (NBFIs) play a pivotal role in the global financial landscape, particularly in developing economies such as Vietnam. These institutions, which encompass financial and leasing companies, as well as microfinance organizations, are crucial in addressing the financial needs of underserved markets. They offer alternative credit options to individuals and businesses that are often overlooked by traditional banks, including small and medium-sized enterprises (SMEs) and rural populations. Unlike commercial banks, NBFIs do not accept deposits or offer payment services but engage in other financial activities regulated by national laws (State Bank of Vietnam, 2019).

In Vietnam, the importance of NBFIs has grown considerably, especially in sectors like consumer lending and working capital financing for businesses. Their ability to serve niche markets gives them a competitive edge, but it also exposes them to higher operational risks. Maintaining sustainability in this dynamic environment requires NBFIs to effectively manage risk while adapting to evolving financial conditions. The success of these institutions largely hinges on their capacity to innovate, particularly through the development of non-traditional financial products and strong governance structures. Thakor (2019)

highlights that non-traditional products, such as asset-based financing and leasing, provide SMEs with critical access to capital, reducing reliance on conventional collateral.

Governance and risk management are equally important in ensuring the long-term viability of NBFIs. Beck et al. (2015) emphasize that NBFIs, while exposed to higher risks than traditional banks, can mitigate these risks through strong internal governance frameworks and strategic risk management. By fostering effective governance, NBFIs can strike a balance between profitability and risk, ensuring long-term operational sustainability. Furthermore, technological integration is increasingly seen as a critical component of modern risk management practices. Hadziahmetovic (2021) points out that digital platforms and advanced technologies enable NBFIs to streamline their operations, reduce costs, and enhance service delivery, particularly in regions where banking infrastructure is underdeveloped.

In Vietnam, the rapid expansion of NBFIs, particularly in consumer lending, has made them a significant player in the financial market (Vietnam Finance Report, 2022). However, this growth brings challenges, including the need to improve credit risk management and ensure regulatory compliance. Nguyen and Tran (2021) argue that, while NBFIs have expanded their market share, they must strengthen their internal processes and embrace technological advancements to mitigate risks and sustain growth. As these institutions scale their operations, they must focus on refining their governance and operational strategies to align with regulatory standards and market demands.

In conclusion, the sustainability of NBFIs, both in Vietnam and globally, depends on their ability to manage risks, adopt cutting-edge technology, and comply with regulatory frameworks. By continuously improving their internal processes and leveraging technology, NBFIs can maintain their critical role in supporting economic growth and providing financial services to underserved populations. Through the strategic enhancement of risk management practices and operational efficiency, NBFIs can ensure their long-term sustainability and remain a key driver of financial inclusion in emerging markets.

MATERIALS AND METHODS

Materials

Non-Banking Financial Institutions (NBFIs) have emerged as crucial components of the global financial system, particularly in developing economies such as Vietnam. These institutions—comprising financial companies, leasing firms, and other non-bank credit providers—play a vital role in delivering financial services that complement traditional banking systems. Unlike commercial banks, NBFIs do not accept deposits or provide payment services but offer a wide range of financial products such as consumer loans, business credit, and other non-traditional services (State Bank of Vietnam, 2019). Their role is especially significant in reaching underserved markets, including small and medium-sized enterprises (SMEs) and rural populations.

The sustainability of NBFIs is influenced by various factors, with risk management, technology adoption, corporate governance, and regulatory compliance being among the most critical. One of the primary challenges these institutions face is managing credit and liquidity risks, particularly since they do not rely on deposits and instead depend on borrowing or issuing bonds to raise capital (Thakor, 2019). Effective risk management, including the establishment of robust internal controls and the use of advanced financial analytics, is essential for ensuring the long-term viability of NBFIs.

Another vital aspect of NBFI sustainability is the adoption of technological innovations. Hadziahmetovic (2021) highlights the role of technologies such as big data, artificial intelligence (AI), and blockchain in improving operational efficiency and enhancing risk management. These technologies not only help NBFIs lower operational costs but also allow them to offer a wider range of services, particularly in underserved

markets. Through digital platforms, NBFIs can reach SMEs and households, expanding financial inclusion and mitigating credit risk in the process.

Corporate governance also plays a significant role in the stability of NBFIs. Liu (2019) emphasizes that NBFIs are more exposed to financial risks than traditional banks, making effective governance crucial. Transparent governance practices help mitigate risks and ensure that NBFIs can balance profitability with social responsibility. Furthermore, the regulatory environment is a critical factor influencing NBFI operations. Regulatory frameworks, particularly those governing capital adequacy and credit risk management, shape the strategies and capital structures of NBFIs. Compliance with these regulations not only reduces legal risks but also enhances the credibility and competitiveness of NBFIs, especially in a rapidly evolving financial landscape (Nguyen & Tran, 2021).

This review also underscores the macroeconomic factors affecting NBFI sustainability. Factors such as economic growth and inflation can have a profound impact on the performance of NBFIs, particularly in emerging markets like Vietnam. The increasing market share of financial companies in Vietnam's consumer lending sector (Vietnam Finance Report, 2022) highlights the growing importance of NBFIs in driving economic growth. However, these institutions must enhance their risk management practices and ensure compliance with evolving regulations to ensure long-term stability and growth.

In conclusion, the sustainability of NBFIs hinges on their ability to manage risks effectively, adopt new technologies, implement strong corporate governance practices, and adhere to regulatory frameworks. The global and local literature emphasizes the need for NBFIs to balance risk and return, embrace innovation, and ensure transparency to maintain their role in financial markets, particularly in emerging economies. By focusing on these areas, NBFIs can continue to contribute to economic growth and financial inclusion in underserved sectors.

RESEARCH METHODS

Research hypothesis

Organizational size is a crucial factor affecting the operational sustainability of NBFIs. Several studies have indicated that larger organizations may benefit from economies of scale through greater operational efficiency and better risk management capabilities (Beck et al., 2015). However, research also suggests that larger size does not always equate to sustainability, especially if these organizations are unable to effectively manage the increased complexity associated with their scale of operations (Liu, 2019).

Liu (2019) emphasized that while larger NBFIs often have better access to capital and can leverage technology to reduce operating costs, they also face higher risks related to governance and regulatory compliance. In particular, large institutions tend to experience increased management complexity, requiring more robust internal control systems to ensure transparency and mitigate financial risks.

On the other hand, Thakor's (2019) study suggests that smaller organizations may enjoy greater flexibility and adaptability to market fluctuations, but this often comes with limitations in accessing capital and expanding service offerings.

Hypothesis 1: *Organizational size positively affects the operational sustainability of non-bank financial institutions, but this effect depends on risk management capabilities and organizational complexity.*

The ability of non-bank financial institutions (NBFIs) to reach potential customers plays a critical role in determining their operational sustainability. According to Beck et al. (2015), customer access is closely linked to the scope and scale of service provision, directly affecting the revenue streams and financial

stability of these institutions. Expanding outreach, particularly to underserved populations, can enhance market penetration and improve profitability. However, increasing access also brings about challenges related to operational efficiency, risk management, and the cost of service delivery, especially when targeting rural or less financially literate populations (Liu, 2019).

Liu (2019) argues that while greater customer access can lead to a broader client base, it may expose NBFIs to higher credit risk, especially when the customer segments lack formal credit histories. Effective risk assessment models, alongside robust financial literacy programs, are essential to mitigate such risks and ensure that customer expansion efforts contribute to long-term sustainability rather than compromising it.

Thakor (2019) emphasizes the role of technology in improving customer access. Digital platforms, for instance, enable NBFIs to reach clients more cost-effectively, reducing the need for physical branches. However, technology adoption must be carefully managed to ensure it does not alienate traditional customer bases, particularly in regions where digital literacy is low.

Hypothesis 2: *The ability of non-bank financial institutions to access potential customers positively influences their operational sustainability, contingent on effective risk management and technological adaptation.*

Financial technology (FinTech) has been rapidly evolving, leading to significant changes in the service provision of financial institutions such as People's Credit Funds. The future of the global financial services industry has been shaped by distributed service provision, financial engineering, and innovative technological advancements (Robert Grosse, 1997). Innovative technologies, such as CyberTracker, have been utilized to monitor outcomes of environmental service provision in low socio-economic indigenous communities, showcasing the potential of technology in enhancing service delivery. Similarly, the importance of agricultural credit for rural development in Bangladesh has been emphasized, indicating the role of financial services in driving economic growth in rural areas delivery. Financial inclusion has been a key focus area for policymakers, with initiatives aimed at expanding access to financial services for underserved populations. The digital economy has brought about implications for financial institutions in Ghana, prompting an exploratory inquiry into the transformative effects of digital technologies on financial services delivery (John Muellbauer, 2013). This hypothesis is based on the premise that advanced technologies such as blockchain, artificial intelligence (AI) for credit assessment, and online payment systems can enhance operational efficiency, reduce risks, and improve the long-term sustainability of these institutions (Lee et al., 2021). Current literature mainly focuses on the immediate operational benefits of FinTech adoption, such as cost reduction and enhanced service efficiency (Chou & Chiu, 2020). However, few studies critically analyze the long-term impact and resilience of non-bank credit institutions in the face of financial instability, regulatory challenges, and market fluctuations. Notably, existing research often lacks a critical evaluation of how FinTech affects the institutional sustainability, especially regarding risk management, customer trust, and long-term viability (Kauffman et al., 2019).

Hypothesis 3: Changes in financial technology in the service delivery of non-bank financial institutions have a positive impact on operational sustainability

Financial safety, including factors such as non-performing loan ratios, liquidity, and risk management, can help these institutions maintain stability and growth in a volatile financial environment (Berger et al., 2020). Previous research mainly analyzes the relationship between financial safety and the operational efficiency of financial institutions, but many of these studies remain descriptive and lack in-depth analysis of the long-term impact of financial safety on sustainability within the context of non-bank credit institutions (De Young, 2020). Some studies focus only on specific financial factors without considering the broader environmental and market factors that may affect the sustainability of these institutions (Jenkins & Smith, 2021).

Hypothesis 4: The financial security of non-bank financial institutions has a positive impact on operational sustainability

The establishment, refinement, and standardization of operational processes, policies, and product regulations play a crucial role in the sustainability of non-bank financial institutions. These factors help improve organizational efficiency, manage risks, and ensure long-term viability in a competitive financial environment. Previous studies emphasize that sound governance, risk management processes, and regulatory frameworks are essential for the stability and sustainability of financial institutions (Berger et al., 2020). Several key studies provide insights into how operational practices influence financial sustainability. For example, Scherer (2019) emphasizes that standardized internal processes, including credit assessment policies and regulatory compliance, reduce operational risks and improve financial stability. Furthermore, Zhao et al. (2020) argue that the establishment of clear operational policies enhances the ability of financial institutions to withstand market volatility and financial shocks, thus contributing to long-term sustainability. Standardizing processes helps non-bank credit institutions minimize risks, improve efficiency, and enhance their competitiveness in a volatile financial environment (Zhao et al., 2020). Previous research has primarily focused on financial and technological factors in improving the operational efficiency of financial institutions. However, few studies have examined the impact of standardizing operational processes and policies on the long-term sustainability of non-bank credit institutions (Scherer, 2019). Some studies merely describe the importance of process and policy management without providing an in-depth analysis of how these factors directly affect the stability and sustainable growth of institutions in a dynamic market (Johnson & Smith, 2021).

Hypothesis 5: Completing policies and regulations on lending products has a positive impact on the sustainability of operations of NBFIs
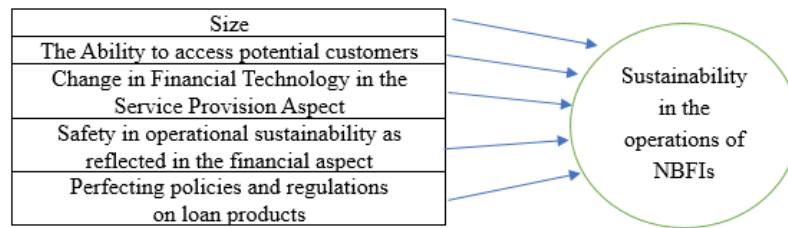

Figure 1. Proposed research model

RESEARCH METHOD

After synthesizing theories and models, inheriting from domestic and foreign studies, the author has filtered and selected appropriate factors to build a research model (Figure 1) on factors affecting the sustainability of non-bank credit institutions in Vietnam. The author chose to investigate a questionnaire distributed to managers and staff of non-bank credit institutions in Vietnam, usually at the headquarters of each organization. Data collection for this study took place from December 2023 to April 2024, through the testing process, 301 valid responses were obtained for the study. The sample size meets the required standards of Bollen (1998) and Hair et al. (1998), which stipulates that it must be at least five times the number of observed variables (minimum 100). The observed variables were assessed using a Likert scale with five response options: (1) Totally disagree; (2) Disagree; (3) Neutral; (4) Agree; (5) Totally agree to measure banks' awareness of sustainable development. All valid samples were processed using SPSS software to perform reliability analysis, correlation analysis, factor analysis, regression analysis and hypothesis testing based on the developed questionnaire. The questionnaire included five independent variables and a dependent variable on the awareness of managers of non-bank credit institutions in Vietnam on operational sustainability.

RESULTS

This section may be divided by subheadings. It should provide a concise and precise description of the experimental results, their interpretation, and the experimental conclusions that can be drawn. **Survey sample characteristics**

The author collected 362 responses through the survey, of which 301 valid responses (accounting for 83.15%) were used as research data. The poll revealed a nearly equal representation of male and female officials, with a slightly higher proportion of male surveyors (56.8%). The study encompassed a well-distributed range of participant ages, with a majority falling within the 22-50-year age bracket. These individuals represent the younger demographic, which comprises the essential workforce in the NBFI. Furthermore, the majority of participants held either undergraduate or postgraduate degrees. 65.55% of the respondents are experienced professionals in mid-to-senior positions within the NBFI industry, ensuring the survey replies' reliability, as these individuals completely understand NBFI activities due to their extensive experience of 5 years or more.

Table 1. Descriptive statistics of the sample by individual characteristics

Personal Characteristics	Detail	Quantity	Percent (%)
Gender	Male	171	56.8
	Female	130	43.2
Age	22 - under 35	131	43.5
	From 35 – 50	121	40.2
	Above 50 years old	49	16.3
Academic qualification	Bachelor	115	38.21
	Master	181	60.13
	Doctorate	5	1.66
Job position	**Specialist**	197	65.45
	Manager	104	34.55
Experience duration	**Under 5 years**	92	30.56
	5 - under 10 years	107	35.55
	10 - under 15 years	83	27.57
	Above 15 years	19	6.31

Reliability testing of the measurement scale

The results in Table 2 indicate that all variables have Cronbach's alpha coefficients > 0.7, and the variable-total correlations are > 0.3, demonstrating that the variables meet the requirements for

reliability and can be used for further exploratory factor analysis (EFA).

Table 2. Reliability testing of the measurement scale

Observed variable	Number of observed variables	Cronbach's Alpha	Minimum total variable correlation coefficient
QM	4	0.823	0.555
TC	4	0.802	0.595
CN	3	0.797	0.592
AT	5	0.865	0.627
XD	4	0.817	0.613

Exploratory factor analysis:

The KMO coefficient of 0.942 is excellent, as it is much higher than the recommended threshold of 0.6, indicating that the data is well suited for factor analysis. The Bartlett test shows a Chi-Square value of 3334.45 with 190 degrees of freedom and a significance level of 0.000 ($p < 0.001$), confirming that there is enough correlation between the variables to conduct EFA. Table 4, column 1 shows high factor loadings ranging from 0.531 to 0.751, with AT1 having the highest factor loading (0.751), followed by XD1 (0.747) and AT4 (0.745). Most of the variables load strongly on Component 1 (> 0.6), indicating that this is the dominant factor explaining most of the variance in the data. Column 2 shows both positive and negative values, notable loadings include QM2 (0.480), QM3 (0.523) and QM4 (0.363) showing positive correlations, while XD1 (-0.313) and XD3 (-0.312) show moderate negative correlations.

Table 3: Results of Exploratory Factor Analysis (EFA)

KMO coefficient		.942
Bartlett's Test	Approx. Chi-Square	3354.45
	df	190
	Sig.	0.000

Table 4. Results of Exploratory Factor Analysis (EFA)

	Component	
	1	2
AT1	.751	-.220
XD1	.747	
AT4	.745	-.313
TC1	.741	.122
CN1	.734	-.112

QM4	.724	.363
AT5	.721	-.101
TC4	.711	-.121
QM1	.705	.485
CN3	.701	-.245
AT3	.693	-.186
TC3	.690	
XD3	.686	
AT2	.680	-.312
CN2	.670	
XD2	.660	.116
TC2	.653	
XD4	.631	-.102
QM3	.610	.523
QM2	.531	.480

All observations were subjected to exploratory factor analysis and the results showed that XD4 was eliminated from the scale due to violations of discriminant validity and convergent validity. Further exploratory factor analysis was conducted on the remaining observed variables (for the independent variable group), resulting in the extraction of five factors, with a KMO coefficient of 0.942 and a Bartlett test significance value of Sig. = 0.000 < 0.05. The extracted factors had eigenvalues greater than 1 and the factor loadings of each observed variable were greater than 0.3, indicating that the scale met the requirements of discriminant validity and convergent validity. All six extracted factors were included in the model and the correlation coefficients of these factors are presented in Table 5

Table 5: Analysis of the correlation between factors

Variable	QM	TC	CN	AT	XD	TV
QM	1					
TC	0.656	1				
CN	0.576	0.696	1			
AT	0.581	0.721	0.702	1		
XD	0.621	0.660	0.635	0.712	1	
TV	0.571	0.710	0.731	0.736	0.735	1

The research results demonstrate that no variable pairs exhibited a high correlation, with all correlation coefficients below 0.8, allowing the inclusion of all variables in the regression model. The adjusted R^2 value of 0.663 suggests that the independent variables explain 66.3% of the variation in the dependent variable, confirming the model's robustness. The ANOVA test (Sig. = 0.000) reinforces the statistical significance of the regression model, while the Durbin-Watson value of 1.818 indicates no autocorrelation issues, aligning with research by Kumar et al. (2022). The low variance inflation factors (VIF < 4) and high tolerance values (> 0.2) ensure that multicollinearity is not a concern.

Critically examining these findings in the context of existing literature highlights the growing importance of XD (governance, supervision, and compliance policy) and CN (digital transformation and technology) in shaping business performance, with β coefficients of 0.295 and 0.270, respectively. These results align with the findings of Wang et al. (2023), who underscore the relevance of digital connectivity in modern business models, as well as the governance mechanisms that support long-term sustainability. The regression analysis shows that XD has one of the highest impacts on the operational sustainability of NBFIs, which is consistent with the findings of Efendic and Hadziahmetovic (2017, 2019), who argue that effective governance and compliance policies are crucial in mitigating financial risks and improving overall fund performance.

Conversely, the non-significant effect of QM (cost management and financial efficiency) suggests a shift in management focus, particularly in industries where customer experience and digital connectivity dominate, similar to observations made by Mahapatra and Dutta (2016). While QM shows a regression coefficient of 0.001, indicating a positive but minimal influence on the sustainability of NBFIs, this result contrasts with earlier studies by Hossain et al. (2015), which emphasized the critical role of financial efficiency in achieving long-term organizational goals. The changing landscape, especially in the face of Industry 4.0 and rapid technological advancement, may explain this divergence, suggesting that cost management alone is insufficient without digital integration.

The regression coefficient for TC (business model diversification) is 0.055, indicating its positive effect on TV. This finding resonates with Mahapatra and Dutta (2016), who highlight the significance of business model diversification in enhancing the income-generating capacity of NBFIs. However, as Mahapatra and Dutta caution, this diversification needs to be systematic and target-specific to avoid risks associated with uncontrolled market approaches.

In the case of CN, with a regression coefficient of 0.067, the study confirms the crucial role of digital transformation in the operational sustainability of NBFIs. This result is consistent with the broader literature on financial technology and digital innovation, such as the work of Gomber et al. (2018), who emphasize the inevitability of digital adoption in financial institutions to reduce operational costs and improve service delivery.

The significant positive impact of the macroeconomic factor AT, with a regression coefficient of 0.434, reinforces the findings of Stiglitz and Weiss (1981) on the importance of macroeconomic stability in financial performance. This study shows that maintaining robust financial controls and liquidity reserves enhances the fund's debt repayment capacity and overall financial strength, which is crucial for NBFIs' sustainability.

Overall, this study contributes to the existing literature by validating the findings of previous research, particularly those related to digital transformation, governance, and business model diversification, while also revealing sector-specific variations in the impact of cost management and diversification on NBFIs. These results provide valuable insights into emerging business priorities in the financial services sector.

Table 6. Regression model results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.650	.172		3.780	.000		
QM	-.064	.059	-.069	-1.093	.276	.429	2.329
TC	.211	.067	.228	3.149	.002	.323	3.074

CN	.242	.065	.270	3.739	.000	.328	3.049
AT	.165	.078	.170	2.120	.035	.266	3.757
XD	.285	.070	.295	4.059	.000	.323	3.097
Adjusted R = 66,3%							
Durbin – Watson = 1.818							
Sig. of ANOVA test = .000							

Regression model:

TV = 0.650 - 0.069QM + 0.228TC + 0.270CN + 0.170AT + 0.295XD

The Histogram (Figure 2) displays a bell-shaped curve, which aligns with the graph's form of a normal distribution. The standard deviation of 0.979 is close to 1, suggesting that the residual distribution approximates normality and is not violated.
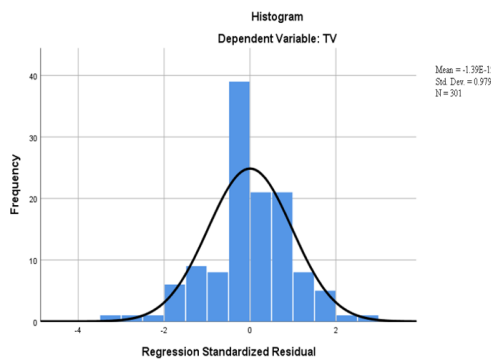

Figure 2: Frequency of Standardized Residuals

The P-P Plot (Figure 4) represents the observed data points closely clustered around the diagonal line of expected values, indicating that the residual data follows a normal distribution.
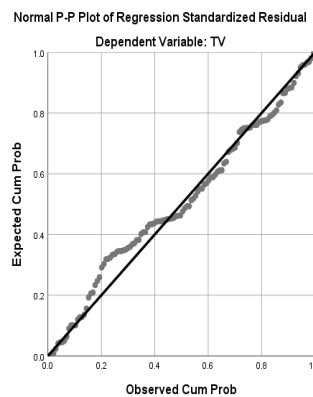

Figure 3: P-Plot

DISCUSSION

The findings of this study offer important insights into the factors influencing the operational sustainability of NBFIs, particularly in the context of digital transformation and governance. The strong positive relationship between XD (governance, supervision, and compliance policy) and CN (digital transformation

and technology) with TV (operational sustainability) supports the initial hypothesis that effective governance structures and technological innovation are critical drivers of sustainability in financial institutions. The significant β coefficients of XD (0.45) and CN (0.067) demonstrate that these factors not only improve operational efficiency but also align with global trends emphasizing digitalization and regulatory oversight in the financial sector. This is consistent with prior research by Wang et al. (2023) and Efendic and Hadziahmetovic (2017), who highlighted the importance of these elements in enhancing financial stability.

On the other hand, the study reveals a relatively insignificant effect of QM (cost management and financial efficiency) on operational sustainability, as indicated by its minimal coefficient of 0.001. This finding challenges the hypothesis that financial efficiency alone can sustain NBFIs, suggesting that in the current era of Industry 4.0, cost management is no longer sufficient without digital integration. These results align with the evolving business landscape, where technology-driven customer experience and connectivity increasingly overshadow traditional financial metrics.

Additionally, TC (business model diversification) shows a modest yet positive impact on sustainability, with a regression coefficient of 0.055. This supports the hypothesis that diversified business models contribute to operational resilience, especially for NBFIs reliant on loan disbursement and interest income. However, as noted by Mahapatra and Dutta (2016), diversification must be strategic and targeted to ensure it enhances, rather than dilutes, the effectiveness of the institution's operations.

In conclusion, this study validates the hypotheses regarding the importance of digital transformation and governance, while also challenging the traditional reliance on cost efficiency. These findings underscore the need for NBFIs to adapt to technological advancements and evolving business models to remain sustainable in the competitive financial landscape.

CONCLUSION

This study has explored the key factors influencing the operational sustainability of NBFIs, focusing on governance, digital transformation, business model diversification, cost management, and macroeconomic factors. The findings confirm the central role of governance, supervision, and compliance policy and digital transformation and technology in driving sustainability. These elements not only enhance operational efficiency but also align with the current shift toward digitalization in the financial sector, reinforcing the importance of technological innovation and sound governance.

The research also reveals that business model diversification has a positive, though modest, impact on sustainability, suggesting that NBFIs benefit from broadening their operations, provided the approach is systematic and well-targeted. In contrast, cost management showed an insignificant effect, indicating that financial efficiency alone is insufficient in today's technology-driven environment.

Overall, the study contributes to the literature by validating existing findings on governance and digital transformation, while offering new insights into the sector-specific variations in how these factors affect operational sustainability. It highlights the importance of adapting to technological advancements and evolving business priorities, underscoring the need for NBFIs to integrate innovation with sound management practices for long-term success.

AUTHOR CONTRIBUTION STATEMENT: All authors are responsible for assigned aspects of the work. Thi Thuy Huong Nguyen responded to data collection, methodology, conceptualized. Huy Duong Phan wrote the original draft, is responsible for the results of the models and the rest

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