

**Citation:** Moghadamnia, E., Dehghani, H., Azizi, M. M., & Naeini, P. (2026). Achieving Sustainable Competitive Advantage Through Financial Technology (FinTech) Adoption: The Mediating Role of Employees' Green Behavior. *Digital Transformation and Administration Innovation*, 4(6), 1-12.

Received date: 2026-03-16

Revised date: 2026-06-22

Accepted date: 2026-06-29

Published date: 2026-11-01



# Achieving Sustainable Competitive Advantage Through Financial Technology (FinTech) Adoption: The Mediating Role of Employees' Green Behavior

Elham Moghadamnia<sup>1\*</sup>, Hamidreza Dehghani<sup>2</sup>, Mohammad Mehdi Azizi<sup>3</sup>, Payam Naeini<sup>4</sup>

1. Department of Technology Management, SR.C., Islamic Azad University, Tehran, Iran

2. Department of Business Administration, University of Tehran, Tehran, Iran

3. Department of Business Administration, SR.C., Islamic Azad University, Tehran, Iran

4. Department of Business Administration, EL.C., Islamic Azad University, Tehran, Iran

\*Correspondence: e.moghadamnia@srbiau.ac.ir

## Abstract

With the rapid development of technology and growing concern about environmental issues, banks worldwide are increasingly adopting FinTech to maintain sustainable competitiveness. Employees' green behavior can play an important role in the implementation of FinTech at both individual and organizational levels. The present study aimed to determine the effect of FinTech adoption and sustainability performance on employees' green behavior and sustainable competitive advantage. A total of 278 employees of Bank Mellat completed the research questionnaire, and the data were analyzed using the partial least squares structural equation modeling method. The results showed that FinTech adoption and sustainability performance affect employees' green behavior in the financial industry. FinTech adoption, sustainability performance, and employees' green behavior significantly affect the bank's sustainable competitive advantage. FinTech adoption is the most important factor in achieving sustainable competitive advantage, followed by employees' green behavior.

**Keywords:** sustainable competitive advantage, financial technology, FinTech, employee behavior, green behavior

## 1. Introduction

In the contemporary banking industry, sustainable competitive advantage has become increasingly dependent on the ability of financial institutions to integrate digital transformation with environmental and social responsibility. Competitive advantage is no longer derived only from cost efficiency, branch expansion, product diversification, or service quality; rather, it increasingly emerges from the capacity of banks to redesign business models, adopt advanced financial technologies, strengthen organizational sustainability performance, and encourage employees to engage in environmentally responsible workplace behaviors. This shift is especially important because banks operate in an environment characterized by technological disruption, regulatory pressure, changing customer expectations, environmental concerns, and growing demand for responsible finance. In such a context, sustainable competitive advantage refers to the ability of an organization to maintain superior performance over time through resources, capabilities, and behaviors that are valuable, difficult to imitate, and aligned with long-term economic, environmental, and social goals (Abubakar et al., 2022; Rahim et al., 2026; Waktola et al., 2024).



Financial technology, commonly known as FinTech, has become one of the most important drivers of transformation in banking and financial services. FinTech refers to technology-enabled financial innovation that can create new business models, applications, processes, and products with material effects on financial markets, financial institutions, and the provision of financial services (Financial Stability, 2023). In banks, FinTech adoption includes the use of digital payments, mobile banking, artificial intelligence, blockchain-based services, big data analytics, automated credit evaluation, digital lending platforms, open banking infrastructure, and intelligent customer-service systems. These technologies enhance transaction speed, reduce operational costs, improve accessibility, strengthen customer experience, and increase the efficiency of financial intermediation. Accordingly, FinTech has moved from being a peripheral technological option to a strategic capability that can influence organizational performance, risk management, market positioning, and long-term competitiveness (Afzal et al., 2025; Ahmad et al., 2025; Dasilas & Karanovic, 2025).

The banking sector is particularly sensitive to FinTech-driven change because banks must simultaneously preserve stability and pursue innovation. Evidence from different banking contexts shows that FinTech can improve bank efficiency and performance, although its outcomes may differ according to bank size, institutional readiness, regulatory maturity, digital infrastructure, and market conditions (Dasilas & Karanovic, 2025; Elmahdy et al., 2025; Kayed et al., 2025). In the Middle East and North Africa, FinTech has been examined as a factor influencing bank stability, while studies in Malaysia and other emerging markets have emphasized the role of FinTech innovation in improving efficiency, strengthening resilience, and enhancing competitive positioning (Afzal et al., 2025; Ahmad et al., 2025; Kayed et al., 2025). Similarly, research on technological innovation in commercial banks has indicated that strategic adoption of digital technologies contributes to competitive advantage by improving operational agility, service delivery, and customer responsiveness (Odhiambo & Mang'ana, 2022). Therefore, FinTech adoption can be understood as a strategic resource that enables banks to respond to market turbulence and build durable advantages.

At the same time, FinTech adoption is not limited to economic and operational outcomes. Increasingly, digital financial technologies are being linked to sustainability, environmental performance, and green transformation. FinTech can reduce paper-based transactions, lower the need for physical branch visits, enable remote service delivery, support data-driven monitoring, and improve transparency in financial decision-making. In corporate and financial contexts, digital technologies may contribute to carbon reduction and sustainable development by enabling more efficient resource allocation, improving disclosure quality, and supporting environmentally oriented decision-making (Allahham et al., 2024; Wang et al., 2024). FinTech-based eco-friendly incentives can also encourage sustainable environmental performance by integrating digital mechanisms with behavioral and organizational incentives (Allahham et al., 2024). Thus, FinTech can function not only as a technological innovation but also as a sustainability-enabling infrastructure that connects operational efficiency with environmental responsibility.

However, the mere adoption of technology does not automatically create sustainable competitive advantage. The benefits of FinTech depend on organizational capabilities, managerial commitment, employee readiness, and the extent to which digital tools are embedded in everyday work practices. Digital transformation requires employees to adopt new routines, use data more effectively, participate in innovation, and align their behaviors with organizational sustainability objectives. Recent management studies emphasize that data-driven decision-making, digital leadership, artificial intelligence experience, and intelligent systems can strengthen creativity, learning, performance, and sustainable competitive advantage when they are supported by appropriate organizational conditions (Wang et al., 2025; Wang & Sun, 2025; Wang & Zhang, 2025). Therefore, the strategic value of FinTech is realized through the interaction between technological resources and human behavior, especially in service-intensive industries such as banking.

Sustainability performance is another key factor in explaining sustainable competitive advantage. Sustainability performance reflects the extent to which an organization successfully integrates economic, environmental, and social objectives into its strategies, operations, and stakeholder relationships. Firms with stronger sustainability performance are generally better positioned to manage risks, respond to crises, attract stakeholders, and preserve legitimacy in competitive markets (Lopez-Torres, 2023; Lu et al., 2022). Research on business sustainability and competitiveness shows that sustainability-oriented practices can enhance organizational reputation, innovation capacity, market differentiation, stakeholder trust, and long-term



resilience (Lopez-Torres, 2023; Waktola et al., 2024). In banking, sustainability performance may include responsible lending, digital process optimization, reduction of resource consumption, ethical service delivery, transparent governance, financial inclusion, and support for environmentally responsible investments. These dimensions can strengthen competitive advantage by aligning the bank's operations with emerging social and regulatory expectations.

Page | 3 The relationship between sustainability performance and competitive advantage can also be explained through the resource-based and dynamic capability perspectives. Organizations gain sustainable competitive advantage when they possess capabilities that allow them to sense environmental changes, seize opportunities, and reconfigure resources in ways that competitors cannot easily replicate. Dynamic capabilities are particularly important in industries exposed to technological change and sustainability pressures, because firms must continuously adapt their processes, supply chains, knowledge systems, and stakeholder relationships (Behi Far et al., 2025). In this regard, FinTech adoption and sustainability performance can be viewed as complementary capabilities: FinTech improves digital agility and operational responsiveness, while sustainability performance strengthens legitimacy, stakeholder commitment, and long-term resilience. Together, these capabilities may create a stronger foundation for sustainable competitive advantage than either capability alone.

Despite the importance of technological and sustainability capabilities, employees remain central to the realization of organizational sustainability. Employees' green behavior refers to discretionary or required workplace behaviors that contribute to environmental sustainability, such as conserving energy, reducing waste, minimizing paper use, supporting digital workflows, complying with environmental policies, and voluntarily participating in green initiatives. Organizational psychology and sustainability research increasingly position employee green behavior as the core of environmentally sustainable organizations because environmental strategies must ultimately be enacted through daily employee actions (Sadiq, 2023; Zacher et al., 2023). Reviews and bibliometric analyses of employee green behavior indicate that this construct has become a significant research domain in management, organizational behavior, and human resource management due to its role in linking sustainability policies with practical workplace outcomes (Hussain et al., 2023).

Employee green behavior is especially relevant in banking because many environmental improvements in financial institutions depend on employee-level actions. Although banks may not generate industrial pollution comparable to manufacturing firms, they consume energy, paper, digital infrastructure, and office resources, and their employees influence the environmental consequences of service delivery. For example, employees can encourage customers to use digital channels, reduce unnecessary printing, support paperless documentation, adopt energy-saving behaviors, and participate in green banking initiatives. Such behaviors can reinforce organizational sustainability performance and enhance the credibility of digital transformation. Studies on workplace green behavior suggest that employee involvement in sustainability projects can strengthen organizational commitment to sustainability, particularly in emerging markets where institutional support for sustainability may still be developing (Baykal & Divrik, 2023; Uwem et al., 2024). Therefore, employees' green behavior can serve as a behavioral mechanism through which sustainability-oriented strategies are translated into competitive outcomes.

Green human resource management has been widely discussed as an organizational approach that promotes employee pro-environmental behavior and environmental commitment. Green HRM practices, such as green training, environmental performance appraisal, green rewards, participation in environmental programs, and sustainability-oriented leadership, can enhance employees' motivation and ability to act in environmentally responsible ways (Bangwal et al., 2025; Din et al., 2025). Moreover, the psychological benefits of green HRM include greater employee well-being, engagement, and identification with organizational sustainability goals, which may further stimulate green behavior (Din et al., 2025). The broader psychology of sustainability also emphasizes that sustainable development in organizations requires attention to human motivation, meaning, well-being, and positive organizational functioning, rather than relying solely on technical or policy-based interventions (Di Fabio & Cooper, 2024). Accordingly, employees' green behavior should be examined not only as an environmental outcome but also as an organizational capability that supports sustainable competitiveness.

The integration of smart technologies, artificial intelligence, robotics, algorithms, and green HRM has created new possibilities for strengthening environmental sustainability. Smart technologies can provide real-time data, automate resource-saving processes, reduce inefficiencies, and support evidence-based decision-making, while green HRM can ensure that employees understand, accept, and enact sustainability goals (Ogbeibu et al., 2024). This interaction is highly relevant to



FinTech-based banking systems, where digital platforms can make green work practices easier, more measurable, and more integrated into daily operations. For instance, digital documentation systems can reduce paper consumption, mobile banking platforms can reduce branch-related resource use, and analytics-based systems can monitor sustainable performance indicators. Yet these technologies require employees who are willing and able to use them in ways that support environmental and organizational objectives.

Recent studies increasingly connect FinTech adoption, sustainability performance, employee green behavior, and sustainable competitive advantage. FinTech adoption may directly strengthen competitive advantage by improving operational efficiency, innovation capability, service accessibility, and customer responsiveness. It may also indirectly support competitive advantage by promoting employee green behavior through digital workflows, paperless operations, and technology-supported environmental practices. Sustainability performance may similarly influence competitive advantage both directly, through reputation, resilience, and stakeholder trust, and indirectly, through the creation of an organizational climate that encourages employees to behave in environmentally responsible ways (Abubakar et al., 2022; Rahim et al., 2026). In this sense, employees' green behavior can be conceptualized as a mediating behavioral mechanism that connects strategic and technological orientations to sustainable competitive outcomes.

Furthermore, research on access to financial services and FinTech-enabled banking suggests that digital finance may reshape relationships among banks, firms, and customers. FinTech can affect access to bank loans, financial inclusion, and firm-level financial opportunities, thereby expanding the strategic role of banks in economic development (Xu et al., 2022). In competitive banking environments, such capabilities may allow banks to differentiate themselves through faster service, better customer experience, more inclusive financial products, and stronger sustainability-oriented offerings. At the same time, research on bank risks shows that FinTech may influence bank risk profiles and that digital transformation can moderate this relationship (Li, 2025). Therefore, the competitive value of FinTech depends on whether banks can manage its risks while converting its technological potential into sustainable organizational outcomes.

The current research problem arises from the need to better understand how technological innovation and sustainability-oriented behavior interact in the banking sector. Although previous studies have examined FinTech adoption, bank performance, environmental sustainability, employee green behavior, and competitive advantage separately, fewer studies have integrated these constructs into a single explanatory model. This gap is important because sustainable competitive advantage is not produced by technology alone, nor by sustainability policies alone; rather, it is produced through the alignment of digital capabilities, sustainability performance, and employee-level behaviors. In particular, the mediating role of employees' green behavior deserves further attention because it explains how strategic investments in FinTech and sustainability may become embedded in everyday organizational practices. In banks, where service delivery depends heavily on employee-customer interaction, digital systems, and procedural compliance, employee behavior may determine whether sustainability strategies remain symbolic or become operationally effective.

Accordingly, the present study aimed to determine the effect of FinTech adoption and sustainability performance on employees' green behavior and sustainable competitive advantage, with emphasis on the mediating role of employees' green behavior in the banking sector.

## 2. Methods and Materials

In terms of purpose, this research is applied and was conducted using a quantitative approach and a survey strategy. Data were collected using a questionnaire based on a five-point Likert scale. A total of 230 questionnaires were distributed among senior experts and information technology specialists through simple random sampling, completed, and entered into Microsoft Excel 2020. The data were then analyzed using SPSS 25 and SmartPLS software.

## 3. Findings and Results

The measurement model shows the relationships between latent variables and their corresponding observed indicators, that is, it determines the extent to which the theory fits the data. The evaluation of the results of the measurement and structural models in PLS-SEM is based on a set of non-parametric evaluation criteria and uses procedures such as bootstrapping and



blindfolding. Initially, model assessment focuses on the measurement models. Examining PLS-SEM estimates enables researchers to assess the reliability and validity of construct measures (Mohsenin & Esfidani, 2016).

The evaluation criteria for reflective measurement models include the reliability of each latent variable and composite reliability for assessing internal consistency, as well as the average variance extracted (AVE) for assessing convergent validity. In addition, the Fornell–Larcker criterion and cross-loadings are used to assess discriminant validity (Behifar et al., 2025).

**Table 1. Results of Reliability and Validity Tests**

Construct	Cronbach's alpha	Composite reliability (rho a)	Composite reliability (rho c)	Average variance extracted (AVE)
Employees' green behavior	0.910	0.915	0.937	0.788
Sustainability performance	0.901	0.914	0.938	0.835
Sustainable competitive advantage	0.931	0.934	0.946	0.744
FinTech adoption	0.728	0.727	0.846	0.648

For all variables in the model, Cronbach's alpha values were higher than 0.70, CR or composite reliability values were higher than 0.70, and the average variance extracted, or AVE, values were higher than 0.50. Therefore, the model variables had acceptable reliability and convergent validity.

Diagnostic or divergent validity refers to assessing the ability of a reflective measurement model to distinguish the observed indicators of its latent variable from other observed indicators in the model. According to this criterion, a latent variable should explain greater variance among its own observed indicators compared with other latent variables. In this case, the latent variable under consideration can be said to have high diagnostic validity. In statistical terms, the square root of the average variance extracted of each latent variable should be greater than the maximum correlation between that latent variable and other latent variables, or the average variance extracted of each latent variable should be greater than the squared correlation between that latent variable and other latent variables (Fornell & Larcker, 1987).

**Table 2. Fornell–Larcker Test**

Construct	Employees' green behavior	Sustainability performance	Sustainable competitive advantage	FinTech adoption
Employees' green behavior	0.888			
Sustainability performance	0.521	0.914		
Sustainable competitive advantage	0.494	0.512	0.862	
FinTech adoption	0.529	0.591	0.581	0.805

The square root of the average variance extracted (AVE) is reported on the diagonal elements, and the correlations among constructs are reported below them. According to Table 2, since the square root of the average variance extracted of each latent variable in the examined model is greater than the maximum correlation between that latent variable and other latent variables, the diagnostic validity of the reflective measurement model is confirmed.

A reflective measurement model is considered homogeneous when the absolute value of the factor loading of each observed variable corresponding to the latent variable is greater than 0.70 (Ghasemi, 2021). The measurement model was evaluated by measuring factor loadings, reliability tests, convergent and divergent validity, and the quality of the measurement model or the cross-validated communality index, as described below.



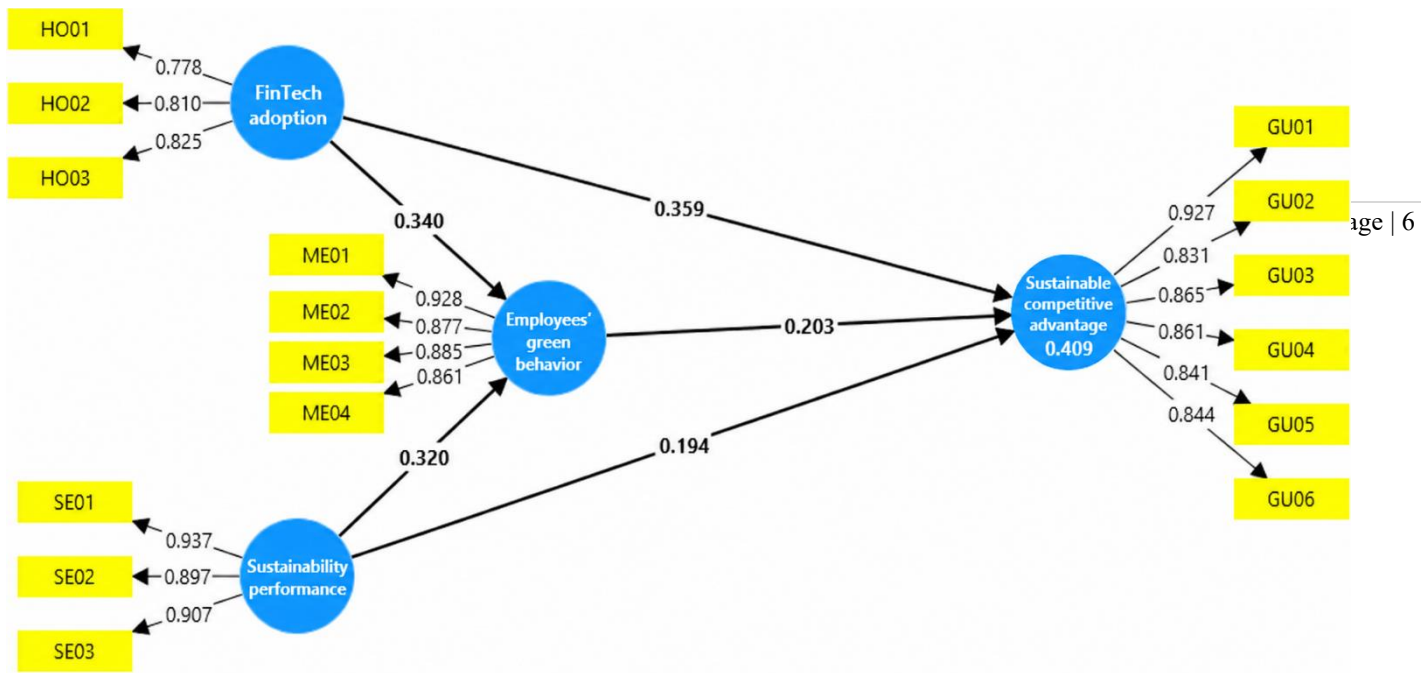


Figure 1. Measurement Model in the Standardized Coefficient Estimation Mode

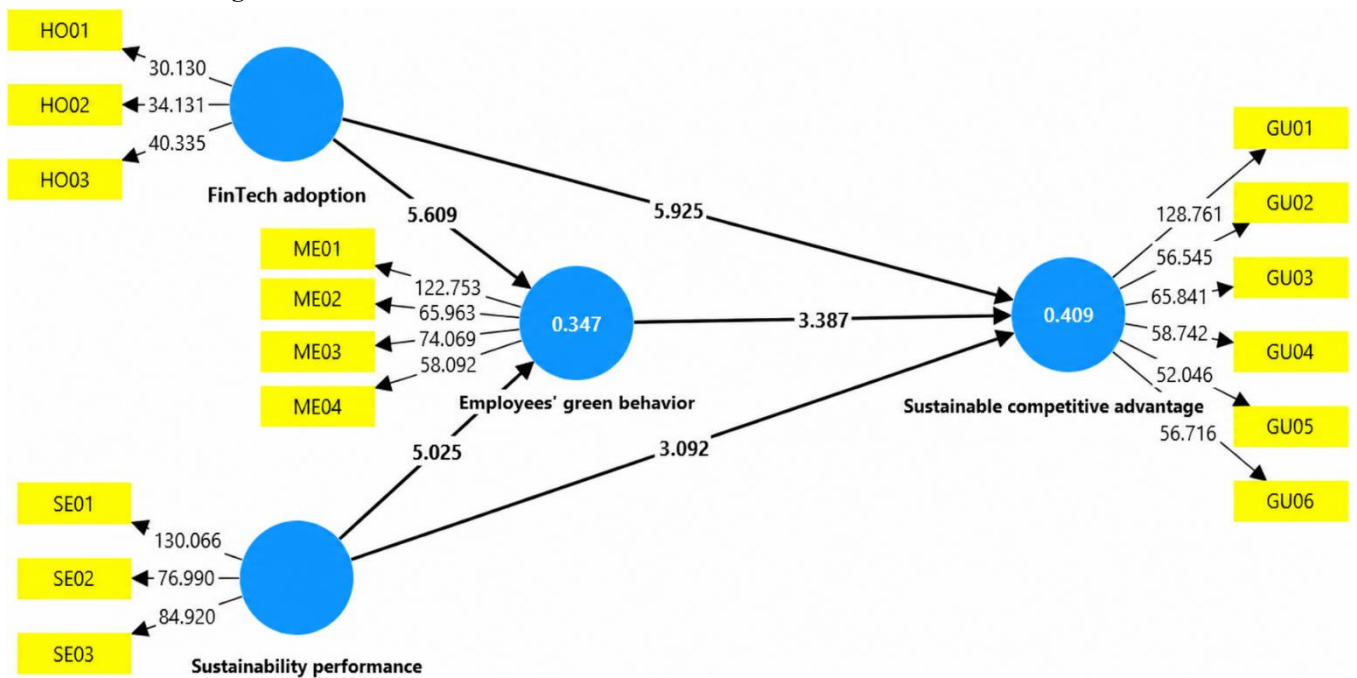


Figure 2. Measurement Model in the Significance Coefficient Mode (T-Value)

As observed in Figures 1 and 2, the significance coefficients, that is, the T-value values for the factor loading coefficients of all variables in the model, were higher than the critical value of the table or, more precisely, fell outside the range of  $-1.96$  to  $+1.96$ . Therefore, it can be stated that they had the required significance at the 95% confidence level. In addition, all factor loadings related to the dimensions and items of the measurement model were higher than 0.70. Therefore, the model was homogeneous, and no deletion or modification was required.

Table 3. Values and Significance of Factor Loadings

Path	Original sample (O)	T statistics ((O/STDEV))	P values
GU01 ← Sustainable competitive advantage	0.927	128.761	0.000
GU02 ← Sustainable competitive advantage	0.831	56.545	0.000
GU03 ← Sustainable competitive advantage	0.865	65.841	0.000
GU04 ← Sustainable competitive advantage	0.861	58.742	0.000



GU05 ← Sustainable competitive advantage	0.841	52.046	0.000
GU06 ← Sustainable competitive advantage	0.844	56.716	0.000
HO01 ← FinTech adoption	0.778	30.130	0.000
HO02 ← FinTech adoption	0.810	34.131	0.000
HO03 ← FinTech adoption	0.825	40.335	0.000
ME01 ← Employees' green behavior	0.928	122.753	0.000
ME02 ← Employees' green behavior	0.877	65.963	0.000
ME03 ← Employees' green behavior	0.885	74.069	0.000
ME04 ← Employees' green behavior	0.861	58.092	0.000
SE01 ← Sustainability performance	0.937	130.066	0.000
SE02 ← Sustainability performance	0.897	76.990	0.000
SE03 ← Sustainability performance	0.907	84.920	0.000

According to the results obtained from the significance coefficients, the T-value values for the factor loading coefficients of all variables in the model were higher than the critical value of the table, and their significance levels were lower than 0.05. Therefore, all factor loading coefficients had the required significance, and the factor loading values related to each variable were also higher than 0.70. Consequently, there was no need to modify the model. Based on the results obtained from the significance coefficients, the T-value values for the factor loading coefficients of all variables in the model were higher than the critical value of the table or, more precisely, fell outside the range of -1.96 to +1.96. Moreover, given that the P-values were less than 0.05, it can be stated that they had the required significance at the 95% confidence level, and no deletion or modification of the model was required.

**Table 4. Values and Significance of Path Coefficients**

Path	Original sample (O)	T statistics ( O/STDEV )	P values
Employees' green behavior → Sustainable competitive advantage	0.203	3.387	0.001
Sustainability performance → Employees' green behavior	0.320	5.025	0.000
Sustainability performance → Sustainable competitive advantage	0.194	3.092	0.002
FinTech adoption → Employees' green behavior	0.340	5.609	0.000
FinTech adoption → Sustainable competitive advantage	0.359	5.925	0.000

Since the t-value for the effect of FinTech adoption and employees' green behavior on sustainable competitive advantage was greater than 1.96, the effect of these two variables on sustainable competitive advantage was confirmed at the 95% confidence level.

Table 5 shows the coefficient of determination for the endogenous constructs of the research model.

**Table 5. Coefficient of Determination of the Model**

Construct	R-square	R-square adjusted
Employees' green behavior	0.347	0.341
Sustainable competitive advantage	0.409	0.401

Considering the coefficient of determination and the adjusted coefficient of determination for the model, which were 0.409 and 0.401, respectively, it can be stated that the independent variables collectively explained 40% of the changes in the levels of sustainable competitive advantage, indicating that the model had good explanatory power.

**Table 6. Results of Model Fit Test**

Index	Saturated model	Estimated model
SRMR	0.050	0.050
d <sub>ULS</sub>	0.345	0.345
d <sub>G</sub>	0.188	0.188
Chi-square	286.049	286.049
NFI	0.903	0.903

Since the SRMR value was 0.050, which is less than or equal to 0.08, and the NFI value was 0.903, which is higher than 0.90, the model fit was acceptable.

Based on the above tables, this index was also within the acceptable threshold; therefore, it can be claimed that the present research model had a very good fit.



#### 4. Discussion and Conclusion

The present study examined the effects of FinTech adoption and sustainability performance on employees' green behavior and sustainable competitive advantage in the banking sector. The findings showed that FinTech adoption had a positive and significant effect on employees' green behavior. This result indicates that when banks adopt financial technologies, digital service platforms, paperless processes, data-based financial systems, and technology-enabled operational procedures, employees are more likely to display environmentally responsible workplace behaviors. In this study, the path coefficient from FinTech adoption to employees' green behavior was positive and significant, showing that digital transformation in banking is not only a technological or operational phenomenon but also a behavioral stimulus that can shape employees' daily work practices. This finding is consistent with studies emphasizing that FinTech can support green and sustainable development by reducing resource-intensive processes and enabling more efficient, transparent, and environmentally oriented operations (Allahham et al., 2024; Wang et al., 2024). It is also aligned with research showing that smart technologies, artificial intelligence, robotics, algorithms, and digital systems can strengthen green human resource management and environmental sustainability when they are integrated with organizational routines and employee practices (Ogbeibu et al., 2024).

The significant relationship between FinTech adoption and employees' green behavior also supports the argument that digital transformation changes the behavioral architecture of banks. FinTech systems reduce dependence on physical documentation, repeated in-person transactions, manual processing, and paper-based service delivery. As employees become more involved in digital banking operations, their work routines increasingly shift toward resource-saving, technology-mediated, and environmentally efficient practices. This interpretation is supported by the broader literature on FinTech adoption, which indicates that digital financial technologies improve efficiency, banking stability, service innovation, operational performance, and customer responsiveness (Afzal et al., 2025; Ahmad et al., 2025; Dasilas & Karanovic, 2025; Elmahdy et al., 2025; Kayed et al., 2025). The finding is also in line with the definition of FinTech as technology-enabled financial innovation that influences financial institutions, financial markets, and financial service provision (Financial Stability, 2023). In other words, the implementation of FinTech can indirectly create an organizational context in which green behavior becomes easier, more practical, and more embedded in everyday banking activities.

The results also showed that sustainability performance had a positive and significant effect on employees' green behavior. This finding suggests that when banks perform better in sustainability-related dimensions, employees become more inclined to engage in green workplace behaviors. Sustainability performance can create a normative and organizational climate in which employees perceive environmental responsibility as part of the bank's identity, mission, and operational priorities. This result is consistent with the psychology of sustainability perspective, which emphasizes that sustainable development in organizations requires attention to employee motivation, meaningful work, well-being, engagement, and positive organizational functioning (Di Fabio & Cooper, 2024). It is also supported by studies on green HRM and employee pro-environmental behavior, which show that environmental commitment, green training, employee engagement, and sustainability-oriented human resource practices can encourage employees to act in environmentally responsible ways (Bangwal et al., 2025; Din et al., 2025). Therefore, sustainability performance does not remain limited to organizational reporting or strategic declarations; rather, it appears to influence the behavioral orientation of employees.

This finding also agrees with previous studies that conceptualize employee green behavior as a central mechanism in environmentally sustainable organizations. Zacher et al. argued that employee green behavior is a core component of organizational environmental sustainability because organizational sustainability strategies are ultimately enacted through employees' daily decisions and actions (Zacher et al., 2023). Similarly, reviews on employee green behavior have emphasized that green behavior at work includes both required and voluntary behaviors that contribute to environmental protection and sustainability, such as conserving resources, reducing waste, supporting green initiatives, and complying with environmental policies (Hussain et al., 2023; Sadiq, 2023). The present finding extends this line of research to the banking context by showing that sustainability performance can stimulate green behavior among bank employees. This is important because banking organizations may not be directly associated with heavy environmental pollution, but their sustainability impact is shaped through energy consumption, paper use, digital infrastructure, employee practices, and the promotion of digital and responsible financial services.



The findings further indicated that employees' green behavior had a positive and significant effect on sustainable competitive advantage. This result means that green behavior among employees is not merely an ethical or symbolic organizational outcome; rather, it contributes to the bank's capacity to achieve and maintain competitive advantage over time. Employees who conserve resources, support paperless banking, encourage digital channels, participate in environmental initiatives, and align their behavior with sustainability goals can help the bank reduce costs, improve public image, strengthen stakeholder trust, and differentiate itself in a competitive market. This finding is consistent with the study by Abubakar et al., which showed that sustainable competitive advantage can be strengthened through corporate social responsibility and green behavior strategies (Abubakar et al., 2022). It is also aligned with research emphasizing workplace green behavior as a driver of sustainable competitive advantage, especially when employee behavior becomes part of the organization's strategic and cultural capability (Uwem et al., 2024).

The significant effect of employees' green behavior on sustainable competitive advantage also highlights the behavioral foundation of sustainability-based competitiveness. Competitive advantage is often discussed in terms of financial resources, technology, market access, or strategic positioning; however, the present results show that employee-level environmental behavior can also function as a strategic resource. This interpretation is compatible with the dynamic capability perspective, according to which organizations achieve competitive advantage by developing capabilities that enable adaptation, reconfiguration, and continuous improvement in response to environmental changes (Behi Far et al., 2025). Employees' green behavior may be considered a behavioral capability because it converts sustainability strategies into practical actions and makes the organization's environmental orientation visible in daily operations. In this respect, the finding also supports the view that sustainability improves competitiveness through reputation, innovation, resilience, stakeholder trust, and operational responsibility (Lopez-Torres, 2023; Waktola et al., 2024).

The study also found that sustainability performance had a positive and significant effect on sustainable competitive advantage. This result indicates that banks with stronger sustainability performance are more likely to achieve higher levels of sustainable competitive advantage. Sustainability performance may enhance competitive advantage by improving the bank's legitimacy, reducing operational inefficiencies, strengthening stakeholder relationships, and increasing adaptability to regulatory and environmental expectations. This finding is consistent with previous research showing that firms with stronger sustainability performance tend to be more resilient during crises and better able to preserve strategic performance under uncertainty (Lu et al., 2022). It is also consistent with studies indicating that sustainability practices strengthen competitiveness and strategic performance by creating trust, differentiation, and long-term organizational value (Lopez-Torres, 2023; Waktola et al., 2024). Therefore, the results confirm that sustainability performance is not separate from competitive strategy; rather, it is one of its essential foundations.

The strongest direct effect in the structural model was the effect of FinTech adoption on sustainable competitive advantage. The positive and significant path coefficient indicates that FinTech adoption is a major driver of competitiveness in the banking sector. This finding supports the argument that digital financial technologies improve banking competitiveness by increasing operational efficiency, reducing transaction costs, improving service quality, expanding customer access, strengthening innovation capability, and enhancing data-driven decision-making. It is consistent with evidence showing that FinTech innovation improves bank efficiency and stability, affects bank performance, and strengthens financial service delivery in different institutional contexts (Afzal et al., 2025; Ahmad et al., 2025; Dasilas & Karanovic, 2025; Kayed et al., 2025). Similarly, research on operational efficiency and profitability shows that FinTech can improve bank performance, although the magnitude of its effect may depend on factors such as bank size and digital readiness (Elmahdy et al., 2025). The present study confirms these findings by showing that FinTech adoption is directly associated with sustainable competitive advantage in a banking sample.

This result is also supported by research on technological innovation and competitive advantage in commercial banks. Odhiambo and Mang'ana found that the strategic adoption of technological innovations can enhance competitive advantage in banks by improving service delivery, operational processes, and responsiveness to market changes (Odhiambo & Mang'ana, 2022). Likewise, studies on FinTech adoption and financial access indicate that FinTech can reshape access to banking services and improve the interaction between banks, customers, and firms (Xu et al., 2022). From this perspective, FinTech adoption



may strengthen sustainable competitive advantage not only by improving internal efficiency but also by expanding the bank's strategic reach and customer value proposition. However, because FinTech can also affect bank risk, its competitive benefits depend on appropriate digital transformation and risk governance (Li, 2025). Therefore, banks must treat FinTech adoption as a strategic transformation process rather than a simple technological investment.

The pattern of results also supports the mediating logic of employees' green behavior in the relationship between FinTech adoption, sustainability performance, and sustainable competitive advantage. FinTech adoption and sustainability performance both significantly predicted employees' green behavior, and employees' green behavior significantly predicted sustainable competitive advantage. This means that part of the strategic effect of FinTech adoption and sustainability performance may operate through the behavioral responses of employees. This interpretation is highly consistent with the recent study by Rahim et al., which directly examined the role of FinTech adoption and sustainability performance in the relationship between employee green behavior and sustainable competitive advantage within banking institutions (Rahim et al., 2026). It also aligns with the broader argument that digital technologies, environmental strategies, and employee behaviors must be integrated to produce sustainable organizational outcomes (Ogbeibu et al., 2024; Zacher et al., 2023). Thus, the findings suggest that banks cannot rely only on FinTech systems or sustainability policies; they must also cultivate employee behaviors that make these systems and policies operationally meaningful.

The findings also have implications for data-driven decision-making and digital leadership in banking. The significant effect of FinTech adoption on sustainable competitive advantage suggests that banks gain strategic value when digital systems are used to support faster, more accurate, and more innovative decision-making. This interpretation aligns with studies showing that data-driven decision-making and digital leadership can enhance creativity and sustainable competitive advantage (Wang & Zhang, 2025). In addition, research on artificial intelligence experience, intelligent personal assistants, and generative AI shows that digital technologies can shape learning, creativity, and performance when users are familiar with the systems and when information is managed effectively (Wang et al., 2025; Wang & Sun, 2025). Although these studies were conducted in different organizational contexts, their implications are relevant to banking because FinTech adoption similarly requires employees and managers to develop digital competence, reduce information redundancy, and transform technological tools into performance-enhancing capabilities.

Overall, the findings indicate that sustainable competitive advantage in banking is produced through the combined effect of technological, sustainability-oriented, and behavioral factors. FinTech adoption emerged as the most powerful direct predictor of sustainable competitive advantage, followed by employees' green behavior and sustainability performance. At the same time, FinTech adoption and sustainability performance significantly explained employees' green behavior, indicating that employee behavior is shaped by both digital infrastructure and organizational sustainability orientation. These results contribute to the management literature by integrating FinTech adoption, sustainability performance, employee green behavior, and sustainable competitive advantage into a unified explanatory framework. They also show that in the banking sector, competitiveness is no longer only a matter of financial performance or technological modernization; it increasingly depends on the extent to which banks can align digital transformation with sustainability performance and employee-level green behavior.

This study has several limitations that should be considered when interpreting the findings. First, the research was conducted among employees of one banking institution, which may limit the generalizability of the results to other banks, financial institutions, or service industries. Second, the study used a cross-sectional design; therefore, although the findings show significant relationships among the variables, causal conclusions should be made with caution. Third, the data were collected through self-report questionnaires, which may be affected by social desirability bias, common method bias, or respondents' subjective perceptions. Fourth, the study focused on selected constructs, namely FinTech adoption, sustainability performance, employees' green behavior, and sustainable competitive advantage, while other organizational factors such as leadership style, organizational culture, regulatory pressure, digital literacy, green training, and customer orientation were not included in the model.

Future studies should examine this model in other banks, financial institutions, and non-banking service organizations to determine whether the observed relationships are stable across different organizational and institutional contexts. Longitudinal research designs are also recommended to clarify the causal direction among FinTech adoption, sustainability performance, employees' green behavior, and sustainable competitive advantage over time. Future researchers may also test the indirect



effects more explicitly by examining the mediating role of employees' green behavior with bootstrapped indirect coefficients and confidence intervals. In addition, future studies can include moderating variables such as digital leadership, organizational culture, green HRM practices, environmental commitment, digital competence, bank size, and perceived technological readiness to provide a more comprehensive explanation of how FinTech and sustainability contribute to competitive advantage.

Bank managers should consider FinTech adoption as a strategic capability rather than only an operational tool. Investment in digital banking platforms, paperless processes, data-driven systems, and intelligent financial services should be accompanied by employee training, environmental awareness programs, and sustainability-oriented organizational policies. Managers should also encourage employees to participate in green workplace initiatives, reduce unnecessary resource consumption, support digital service channels, and align daily work routines with the bank's sustainability objectives. Sustainability performance should be integrated into strategic planning, performance evaluation, and internal communication so that employees understand its relevance to both organizational success and environmental responsibility. By aligning FinTech adoption with sustainability performance and employees' green behavior, banks can strengthen their long-term competitiveness and create a more responsible, efficient, and future-oriented organizational model.

### Ethical Considerations

All procedures performed in this study were under the ethical standards.

### Acknowledgments

Authors thank all who helped us through this study.

### Conflict of Interest

The authors report no conflict of interest.

### Funding/Financial Support

According to the authors, this article has no financial support.

### References

- Abubakar, A., Belwal, S., Mohammed, N., & Mohammed, U. D. (2022). Sustainable competitive advantage through corporate social responsibility (CSR) and green behavior strategies. *Discrete Dynamics in Nature and Society*, 2022. <https://doi.org/10.1155/2022/3734707>
- Afzal, A. M., Abu Khalaf, B., Al-Naimi, M. S., & Samara, E. (2025). The impact of Fintech on the stability of Middle Eastern and North African (MENA) banks. *Risks*, 13(6), 106. <https://doi.org/10.3390/risks13060106>
- Ahmad, R., Xie, C., Wang, P., Liu, B., Zainir, F., & Mohsin, M. I. A. (2025). FinTech innovation, stability and efficiency: Evidence from Malaysian bank industry. *International Journal of Finance and Economics*, 30(1), 221-241. <https://doi.org/10.1002/ijfe.2917>
- Allahham, M., Sharabati, A. A. A., Almazaydeh, L., Sha-Latony, Q. M., Frangieh, R. H., & Al-Anati, G. M. (2024). The impact of fintech-based eco-friendly incentives in improving sustainable environmental performance: A mediating-moderating model. *International Journal of Data and Network Science*, 8(1), 415-430. <https://doi.org/10.5267/j.ijdns.2023.9.013>
- Bangwal, D., Chaudhary, A., Kumar, R., Oberoi, S. S., & Kumar, V. (2025). Green HRM, employee pro-environmental behavior, and environmental commitment. *Acta Psychologica*, 258, 105153. <https://doi.org/10.1016/j.actpsy.2025.105153>
- Baykal, E., & Divrik, B. (2023). Employee involvement in sustainability projects in emergent markets: Evidence from Turkey. *Sustainability*, 15(18), 13929. <https://doi.org/10.3390/su151813929>
- Behi Far, M., Razavi, M., & Jafari, P. (2025). Dynamic capability of the upstream oil and gas supply chain for achieving competitive advantage. *Supply chain management*, 27(89), 1-26. <https://doi.org/10.47176/scmj.2026.1620>
- Dasilas, A., & Karanovic, G. (2025). The impact of FinTech firms on bank performance: Evidence from the UK. *Euromed Journal of Business*, 20(1), 244-258. <https://doi.org/10.1108/EMJB-04-2023-0099>
- Di Fabio, A., & Cooper, C. L. (2024). *Psychology of Sustainability and Sustainable Development in Organizations*. Routledge. <https://doi.org/10.4324/9781003212157>
- Din, A. U., Yang, Y., & Zhang, Y. (2025). The psychological benefits of green HRM: A study of employee well-being, engagement, and green behavior in the healthcare sector. *Acta Psychologica*, 254, 104823. <https://doi.org/10.1016/j.actpsy.2025.104823>
- Elmahdy, A. H. A. M., Abdelkader, M. T. K. M., & Shaker, M. A. M. (2025). Bridging the nexus between Fintech, operational efficiency and banks profitability: The moderating role of bank size. *Future Business Journal*, 11(1), 62. <https://doi.org/10.1186/s43093-025-00478-x>



- Financial Stability, B. (2023). FinTech - Financial Stability Board. <https://www.fsb.org/work-of-the-fsb/financial-innovation-and-structural-change/fintech/>
- Hussain, N., Zakuan, N., Yaacob, T. Z., Hashim, H. I. C., & Hasan, M. Z. B. (2023). Employee green behavior at workplace: A review and bibliometric analysis. *International Journal of Academic Research in Business and Social Sciences*, 13(3), 1584-1594. <https://doi.org/10.6007/IJARBS/v13-i3/16847>
- Kayed, S., Alta'any, M., Meqbel, R., Khatatbeh, I. N., & Mahafzah, A. (2025). Bank FinTech and bank performance: Evidence from an emerging market. *Journal of Financial Reporting and Accounting*, 23(2), 518-535. <https://doi.org/10.1108/JFRA-09-2023-0526>
- Li, X. (2025). Impact of fintech on bank risks: The role of bank digital transformation. *Applied Economics Letters*, 32(6), 895-899. <https://doi.org/10.1080/13504851.2023.2291085>
- Lopez-Torres, G. C. (2023). The impact of SMEs' sustainability on competitiveness. *Measuring Business Excellence*, 27(1), 107-120. <https://doi.org/10.1108/MBE-12-2021-0144>
- Lu, J., Rodenburg, K., Foti, L., & Pegoraro, A. (2022). Are firms with better sustainability performance more resilient during crises? *Business Strategy and the Environment*, 31(7), 3354-3370. <https://doi.org/10.1002/bse.3088>
- Odhiambo, O. E., & Mang'ana, R. (2022). Strategic adoption of technological innovations on competitive advantage of commercial banks in Kenya. *Journal of Business and Strategic Management*, 7(2), 16-36. <https://doi.org/10.47941/jbsm.885>
- Ogbeibu, S., Emelifeonwu, J., Pereira, V., Oseghale, R., Gaskin, J., Sivarajah, U., & Gunasekaran, A. (2024). Demystifying the roles of organisational smart technology, artificial intelligence, robotics and algorithms capability: A strategy for green human resource management and environmental sustainability. *Business Strategy and the Environment*, 33(2), 369-388. <https://doi.org/10.1002/bse.3495>
- Rahim, A., Islam, F., & Or Rosid, H. (2026). From employee green behavior to sustainable competitive advantage: The role of fintech adoption and sustainability performance within banking institutions. *Acta Psychologica*, 264, 106449. <https://doi.org/10.1016/j.actpsy.2026.106449>
- Sadiq, M. (2023). A review of literature studies on employee green behavior. *Review of Applied Management and Social Sciences*, 6(4), 647-652. <https://doi.org/10.47067/ramss.v6i4.355>
- Uwem, E. I., Oyedele, O. O., & Olubiyi, O. T. (2024). Workplace green behavior for sustainable competitive advantage. In *Research Anthology on Business Law, Policy, and Social Responsibility* (pp. 2054-2069). IGI Global. <https://doi.org/10.4018/979-8-3693-2045-7.ch102>
- Waktola, B. S., Singh, M., & Singh, S. (2024). Enhancing strategic performance through sustainable practices: The nexus of social responsibility practice and competitive advantage-moderating role of business ownership type. *Business Strategy & Development*, 7(4), e70043. <https://doi.org/10.1002/bsd2.70043>
- Wang, C., Wang, L., Zhao, S., Yang, C., & Albitar, K. (2024). The impact of Fintech on corporate carbon emissions: Towards green and sustainable development. *Business Strategy and the Environment*, 33(6), 5776-5796. <https://doi.org/10.1002/bse.3778>
- Wang, S., Gao, M., & Zhang, H. (2025). Enhancing creativity and sustainable competitive advantage through data-driven decision-making and digital leadership. *Ieee Transactions on Engineering Management*. <https://doi.org/10.1109/TEM.2025.3551331>
- Wang, S., & Sun, Z. (2025). Roles of artificial intelligence experience, information redundancy, and familiarity in shaping active learning: Insights from intelligent personal assistants. *Education and Information Technologies*, 30(2), 2525-2546. <https://doi.org/10.1007/s10639-024-12895-6>
- Wang, S., & Zhang, H. (2025). Generative AI in international hotel marketing: Impacts on employee creativity and performance. *International Journal of Contemporary Hospitality Management*. <https://doi.org/10.1108/IJCHM-10-2024-1595>
- Xu, L., Liu, Q., Li, B., & Ma, C. (2022). Fintech business and firm access to bank loans. *Accounting and Finance*, 62(4), 4381-4421. <https://doi.org/10.1111/acfi.13023>
- Zacher, H., Rudolph, C. W., & Katz, I. M. (2023). Employee green behavior as the core of environmentally sustainable organizations. *Annual Review of Organizational Psychology and Organizational Behavior*, 10, 465-494. <https://doi.org/10.1146/annurev-orgpsych-120920-050421>

