






“An SEM-based analysis of the determinants of household saving behavior among Islamic bank customers in Indonesia”

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ARTICLE INFO

Ayus Ahmad Yusuf, Asmiyati Khusnul Maryam, Dinan Fathi Shiddieqy and Abdelrehim Awad (2026). An SEM-based analysis of the determinants of household saving behavior among Islamic bank customers in Indonesia. *Banks and Bank Systems*, 21(1), 192-203. doi: [10.21511/bbs.21\(1\).2026.14](https://doi.org/10.21511/bbs.21(1).2026.14)

DOI [http://dx.doi.org/10.21511/bbs.21\(1\).2026.14](http://dx.doi.org/10.21511/bbs.21(1).2026.14)

RELEASED ON Monday, 23 March 2026

RECEIVED ON Friday, 21 February 2025

ACCEPTED ON Friday, 23 January 2026

LICENSE



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JOURNAL

"Banks and Bank Systems"

ISSN PRINT

1816-7403

ISSN ONLINE

1991-7074

PUBLISHER

LLC “Consulting Publishing Company “Business Perspectives”

FOUNDER

LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

35



NUMBER OF FIGURES

6



NUMBER OF TABLES

2

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BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Type of the article: Research Article

Received on: 21st of February, 2025

Accepted on: 23rd of January, 2026

Published on: 23th of March, 2026

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Conflict of interest statement:

Author(s) reported no conflict of interest

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AN SEM-BASED ANALYSIS OF THE DETERMINANTS OF HOUSEHOLD SAVING BEHAVIOR AMONG ISLAMIC BANK CUSTOMERS IN INDONESIA

Abstract

Household savings are a fundamental driver of financial stability and economic growth, particularly in developing economies such as Indonesia. Given the presence of a dual banking system that includes both conventional and Islamic banks, understanding the saving behavior of Islamic bank customers is essential for improving financial inclusion and economic resilience. This study aims to empirically investigate the impact of service quality, customer satisfaction, customer value, customer loyalty, and income on household saving behavior in Indonesia's Islamic banking sector. A structured questionnaire was administered to a sample of 260 Islamic bank customers, and the data were analyzed using Structural Equation Modelling (SEM). The findings reveal that customer loyalty is significantly influenced by service quality ($\beta = 0.23$), customer satisfaction ($\beta = 0.41$), and customer value ($\beta = 0.15$), explaining 31% of the variance in loyalty ($R^2 = 0.31$). Additionally, household savings are directly affected by service quality ($\beta = 0.82$), customer satisfaction ($\beta = 0.16$), customer value ($\beta = 0.06$), customer loyalty ($\beta = 0.17$), and income ($\beta = 0.08$), with the overall model accounting for 55% of the variance in saving behavior ($R^2 = 0.55$). These results underscore the critical role of banking service quality and customer-related factors in fostering saving habits within Islamic banks. The study offers actionable insights for policymakers and financial institutions aiming to enhance customer engagement and strengthen savings mobilization strategies in Islamic banking.

Keywords

Islamic banking, household savings, savings behavior, service quality, customer satisfaction, value, loyalty

JEL Classification

G21, E21, D14, C38

INTRODUCTION

In developing economies, sustainable economic growth is deeply dependent on the availability and mobilization of financial resources. One of the most essential sources of domestic financing is household savings, which serve as the foundation for investment and economic resilience. The ability of a country to stimulate national savings directly impacts its capacity to fund infrastructure, support entrepreneurship, and absorb economic shocks. Consequently, understanding the behavioral dynamics of household savings is becoming increasingly important, particularly in countries with evolving and diversified financial systems.

Indonesia represents a unique case with its dual banking system, where both conventional and Islamic banking models operate simultaneously (Nurun Nikmah et al., 2020; Wardhani et al., 2025). This system offers individuals the flexibility to choose banking services aligned with their personal or religious preferences. Islamic banking, which adheres to principles of Sharia, has gained considerable interest

in recent years as an ethical and inclusive financial alternative. However, despite its growing prominence, Islamic banking still holds a relatively modest share of the financial market, prompting questions about its customers' saving behavior.

Household saving behavior is shaped by a complex interplay of psychological, economic, and institutional factors. In the context of Islamic banking, these factors may manifest differently due to the underlying principles that govern financial interactions, such as the prohibition of interest, risk-sharing contracts, and the promotion of ethical investment.

1. LITERATURE REVIEW

Understanding household saving behavior has remained a central concern in consumer finance and banking research, particularly within Islamic banking, where ethical compliance and service experiences can shape financial decisions. Prior work indicates that perceived service quality and value can enhance satisfaction and loyalty, which may subsequently influence saving intentions and saving-related behavior. Similar patterns have been reported across different economic contexts, suggesting that service experiences and relationship quality are robust drivers of household saving behavior.

Customer loyalty, in turn, emerges as a critical mediator in the relationship between service quality and behavioral outcomes such as retention, recommendation, and increased savings (Roberts-Lombard & Petzer, 2024; Suhartanto et al., 2019; Aziz et al., 2025). This finding is echoed by Nugrahen and Widyani (2021), who emphasized loyalty's dependence on trust and the moral positioning of Islamic banks. Financial literacy and inclusion have also received attention in recent studies. Abiodun Oladapo (2024) highlighted the role of financial knowledge among Islamic bank clients in Saudi Arabia, noting that awareness and understanding of financial products significantly influence customer confidence and saving decisions. These insights align with the findings of Rizqi Febriandika et al. (2023) and Maryam (2023), who documented similar behavior in Indonesia, where Islamic digital banking adoption is growing but still faces literacy challenges. Value for customers has been increasingly studied as a determinant of loyalty and financial behavior. Product value, perceived fairness, and cost-benefit assessments directly shape saving intention (Pant, 2024; Yusuf et al., 2025; Hati et al., 2021; Mohd Thas Thaker et al., 2020). Customer value is often evaluated through economic benefits,

service quality, and time efficiency. In Islamic finance, this also includes alignment with religious principles (Mohd Thas Thaker et al., 2019). Goktas and Dirsehan (2025) and Ghonim and Awad (2025) emphasize the importance of predictive modeling, showing how SEM-based analyses reveal complex causal relationships involving value and behavior.

At the macro level, dual banking systems like that of Indonesia introduce structural competition and consumer choice, which further complicates saving behavior (Albinali, 2023; Kasri et al., 2022; Awad et al., 2024). The competitive environment requires Islamic banks to deliver differentiated service, maintain compliance, and address behavioral expectations effectively. This scenario is consistent with findings in other emerging economies where Islamic banking supports financial stability and inclusion (Chiad & Gherbi, 2024; Ribaj & Mexhuani, 2021). From a methodological standpoint, studies in this field increasingly utilize Structural Equation Modeling (SEM) for its robustness in handling latent constructs and causal relationships (Hair et al., 2017; Murrar et al., 2024; Rivera et al., 2018; Ryan, 2020). SEM enables the evaluation of both direct and indirect effects, which is particularly useful in capturing the mediating role of loyalty and the moderating role of income (Widarjono, 2018). The relationship between income and saving behavior, while intuitively strong, is not always linear. Alfaro and Chauvin (2017), Alfaro and Chauvin (2017) argue that access to financial systems and macroeconomic stability significantly shape the marginal propensity to save. Hayat and Tahir (2021), Aldabousi et al. (2025), and Nyhus (2017) support this by applying a threshold model to examine how natural resource dependency influences investment and savings. In Islamic finance, this relationship is further mediated by ethical principles and perceptions of fairness.

Despite a growing body of literature, gaps remain in the integrated understanding of how service quality, satisfaction, value, loyalty, and income collectively influence saving behavior in Islamic banking. Prior research has largely explored these factors in isolation, without developing comprehensive models tailored to the context of Sharia-compliant finance. Moreover, empirical exploration of Indonesian Islamic banking customers – particularly using SEM – is still limited. While the literature review refers to evidence from a range of countries, the empirical analysis in this article focuses exclusively on Islamic bank customers in Indonesia.

This study aims to empirically investigate the impact of service quality, customer satisfaction, customer value, customer loyalty, and income on household saving behavior in Indonesia's Islamic banking sector. Thus, the hypotheses that the researcher presents in this study are as follows:

H1: Service quality, customer satisfaction, and customer value simultaneously and partially influence customer loyalty.

H2: Customer income, service quality, customer satisfaction, customer value, and customer loyalty simultaneously and partially influence customer savings levels.

2. METHODS

This study employed a quantitative, cross-sectional survey design and used structural equation modelling (SEM) as the main analytical technique to investigate the determinants of household saving behavior in the Islamic banking sector. SEM is applicable in this context because it simultaneously estimates multiple relationships among latent constructs and their indicators and can model both direct and indirect effects within a single framework. In this study, SEM was used to test the hypothesized relationships between service quality, customer satisfaction, customer value, customer loyalty, income, and the savings rate among Islamic banking customers in Indonesia. The analysis involved a two-step approach: assessing the measurement model using CFA, followed by estimation of the structural model.

Data were collected using a structured questionnaire that was administered to customers of Islamic banks in West Java, Indonesia. A total of 260 respondents, using stratified random sampling, were selected to make sure that there would be representation across key demographic groups, including age, employment type, and income level. This sampling approach was chosen to get a diverse, yet reasonably representative, picture of Islamic bank customers in the region.

The survey was conducted from January until August 2024 in 14 regencies and cities: Bogor, Cianjur, Depok, Bekasi, Bandung, Cimahi, Soreang, Tasik, Banjar, Cirebon, Kuningan, Garut, Purwakarta, and Indramayu. These locations have been selected because they exhibit variation in economic structure, cultural characteristics, and level of urbanization, but they all have a considerable penetration of Islamic banking services. Trained enumerators approached customers in and around branches of Islamic banks and invited them to participate in the study.

Participation was strictly on a purely voluntary basis, with informed consent sought and secured prior to questionnaire completion. No data on personal identification were collected, and all individual responses were anonymized before analysis. Demographic information on the sample concerning gender, age, education level, type of employment, monthly income, and Islamic savings account type is presented in Table 1.

The saving behavior construct was developed based on previous studies in Islamic finance and household saving behavior, with items capturing the frequency, regularity, and proportion of income allocated to savings in Islamic bank accounts. All the items were measured using a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”).

A pilot test involving 30 Islamic bank customers was used to assess the clarity, relevance, and internal consistency of the items. Results from this pilot were used to refine wordings where necessary. All Cronbach's alpha values for the constructs were above 0.70, indicating acceptable reliability.

Because the observed indicators were collected using ordinal Likert scales, the responses were transformed into interval-level data by using the Method of Successive Intervals (MSI). MSI allows the conversion of ordinal responses to an approximate interval scale while preserving the relative ordering of categories, making the data more suitable for SEM estimation.

The structural model was specified with two equations. The first explains customer loyalty as a function of service quality, customer satisfaction, and customer value:

$$CL = \gamma_1 \cdot SQ + \gamma_2 \cdot CS + \gamma_3 \cdot CV + \zeta_1. \quad (1)$$

The second equation models the savings rate (S) as a function of service quality (SQ), customer satisfaction (CS), customer value (CV), customer loyalty (CL), and income (I):

$$S = \gamma_4 \cdot SQ + \gamma_5 \cdot CS + \gamma_6 \cdot CV + \gamma_7 \cdot CL + \gamma_8 \cdot I + \zeta_2, \quad (2)$$

where ζ_1 and ζ_2 denote disturbance terms capturing unexplained variance.

CFA was first used to assess the measurement model, focusing on factor loadings, reliability, and convergent and discriminant validity of the constructs. Model fit was evaluated using several indices, including chi-square (χ^2), the Root Mean Square Error of Approximation (RMSEA), the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), and the Comparative Fit Index (CFI). RMSEA values below 0.08 and GFI, AGFI, and CFI values close to or above 0.90 were taken as evidence of acceptable model fit.

After establishing an acceptable measurement model, the structural model was estimated to test the hypothesized relationships among the constructs. The significance and magnitude of the standardized path coefficients were examined to evaluate the proposed effects of service quality, customer satisfaction, customer value, customer loyalty, and income on household saving behavior.

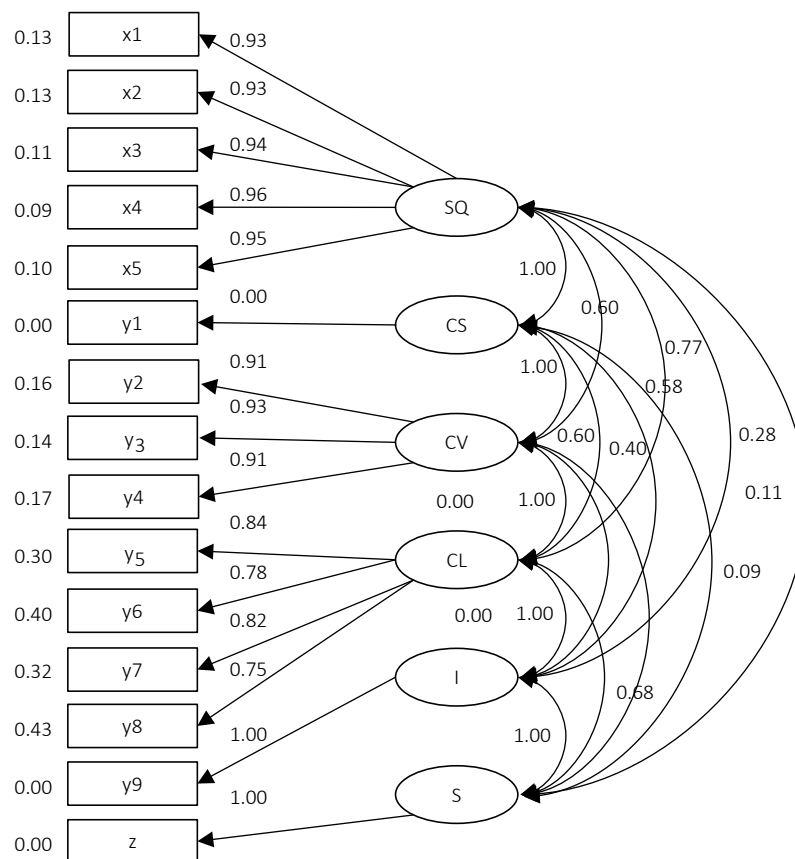


Figure 1. Confirmatory model analysis

3. RESULT AND DISCUSSION

Figures 1 and 2 present the standardized solution and t-values of the confirmatory factor analysis and structural model obtained from LISREL. Figure 3 shows the path diagram with standardized coefficients and t-values for the full structural model.

Figure 3 is a path diagram of the standard coefficients and t-values of the structural equation resulting from data processing.

Model fit was assessed using several indices: chi-square (χ^2), the Root Mean Square Error of Approximation (RMSEA), the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), and the Comparative Fit Index (CFI). Following Hair et al. (2017), GFI and AGFI values closer to 1 indicate a better fit, a small χ^2 relative to degrees of freedom is desirable, and RMSEA values between 0.05 and 0.08 are considered acceptable.

Table 1 summarizes the goodness-of-fit evaluation. The model meets the recommended thresholds: RMSEA is below 0.08, and GFI, AGFI, and CFI are close to or above 0.90. Taken together, these indicators suggest that the proposed SEM model provides a satisfactory fit to the data and is suitable for testing the research hypotheses.

Table 1. Goodness of fit test results

Goodness-of-fit index	Cut-off value	Model evaluation
Chi-square	Small	Good
Significance	≥ 0.05	Good
RMSEA	≤ 0.08	Good
GFI	≥ 0.90	Good
AGFI	≥ 0.90	Good
CFI	≥ 0.95	Good

$$CL = 0.23 \cdot SQ + 0.41 \cdot CS + 0.15 \cdot CV. \quad (3)$$

All three predictors have positive and statistically significant effects on customer loyalty. Service quality ($\beta = 0.23$), customer satisfaction ($\beta = 0.41$) and customer value ($\beta = 0.15$) each contribute to

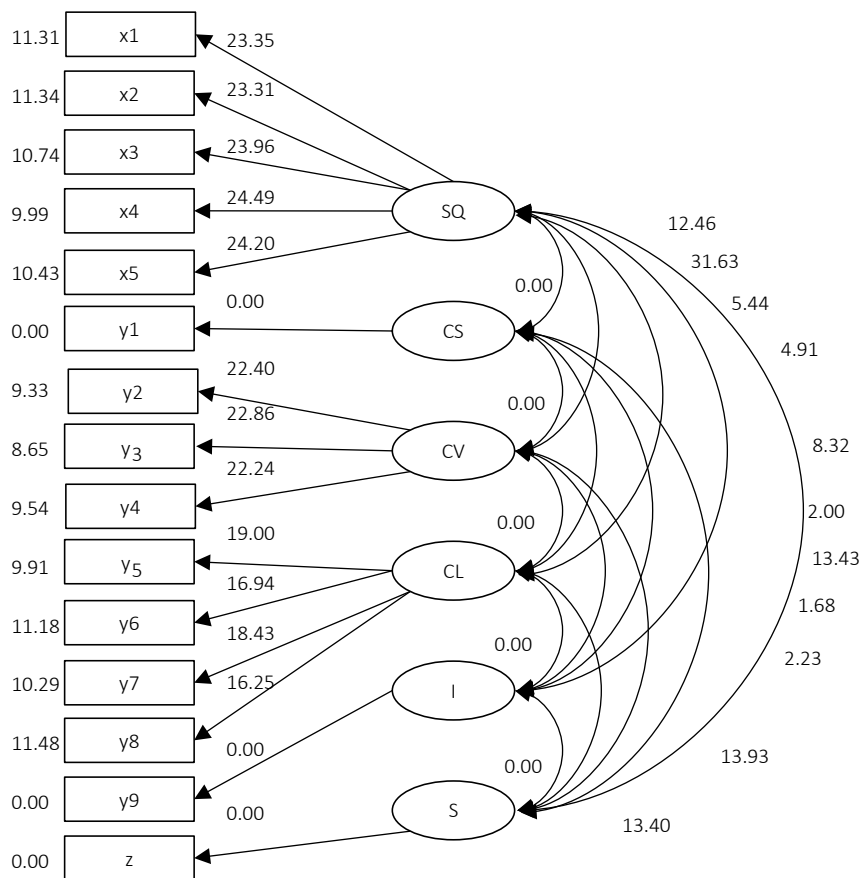


Figure 2. Structural model analysis

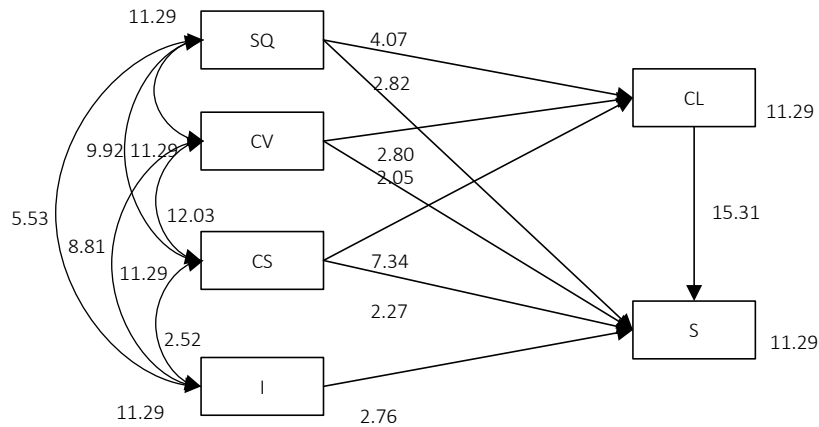


Figure 3. Path analysis

higher loyalty levels. The associated t-values exceed the critical value of 1.96 ($t = 4.07$ for SQ, 7.34 for CS, and 2.80 for CV), confirming the significance of these paths at the 5 percent level.

The model explains 31 per cent of the variance in customer loyalty ($R^2 = 0.31$), indicating that perceived service quality, satisfaction, and value are important drivers of loyalty among Islamic bank customers. The remaining 69 per cent of variance may be associated with other unobserved factors such as financial literacy, financial skills, or broader relationship experiences that were not included in the current model.

These findings support the first hypothesis ($H1$), which posits that service quality, customer satisfaction, and customer value positively influence customer loyalty.

$$S = 0.82 \cdot SQ + 0.16 \cdot CS + 0.06 \cdot CV + 0.17 \cdot CL + 0.08 \cdot I \quad (4)$$

All five predictors have positive and statistically significant effects on the savings rate. Service

quality exerts the strongest influence ($\beta = 0.82$), followed by customer satisfaction ($\beta = 0.16$), customer loyalty ($\beta = 0.17$), customer value ($\beta = 0.06$), and income ($\beta = 0.08$). The corresponding t-values for these paths are above 1.96 ($t = 15.31, 2.80, 2.27, 2.05, \text{ and } 2.76$, respectively), indicating significance at the 5 percent level.

The model accounts for 55 per cent of the variance in household savings ($R^2 = 0.55$), which suggests substantial explanatory power. Nevertheless, 45 per cent of the variance remains unexplained, implying that additional behavioral, institutional, or macroeconomic factors may also shape saving behavior.

Overall, these results support the second hypothesis ($H2$) that service quality, customer satisfaction, customer value, customer loyalty, and income have significant positive effects on the savings rate.

Figure 4 and Figure 5 illustrate the substructure models for customer loyalty and household savings, while Figure 6 presents the integrated structural model that combines all relationships.

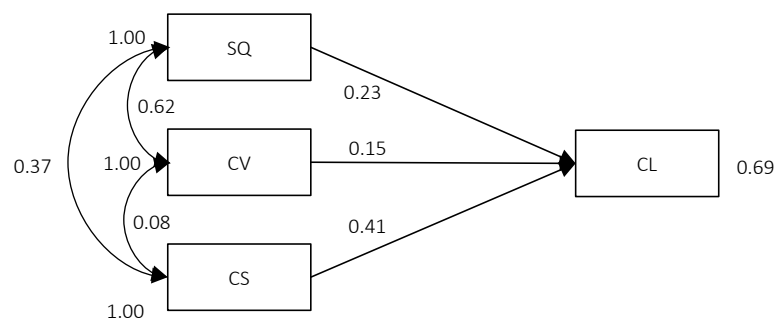


Figure 4. Substructure model 1

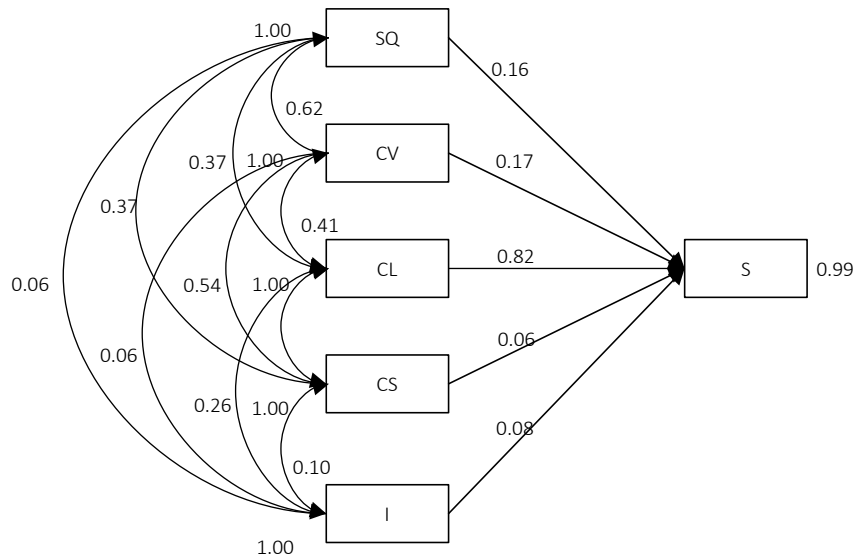


Figure 5. Substructure model 2

The result of this study is an integrated model containing the relationship between service quality, satisfaction, and value for customers with loyalty and customer savings levels. The integrated model is as visualized in Figure 6.

The model indicates that: Service quality, customer satisfaction, and customer value each have a direct positive effect on customer loyalty. Also, Service quality, customer satisfaction, customer value, customer loyalty, and income have direct positive effects on the savings rate. And finally, Service quality, customer satisfaction, and customer value also exert indirect effects on saving behavior through customer loyalty as a mediating variable.

Table 2 summarizes the standardized path coefficients and their significance levels.

The results of this study offer several important insights into the behavioral dynamics of household savings within the context of Islamic banking in Indonesia. The findings support the proposed conceptual model and align with the theoretical expectations derived from the literature, confirming the critical roles of service quality, customer satisfaction, customer value, customer loyalty, and income in shaping saving behavior.

One of the most salient findings is the strong direct influence of service quality on saving behavior

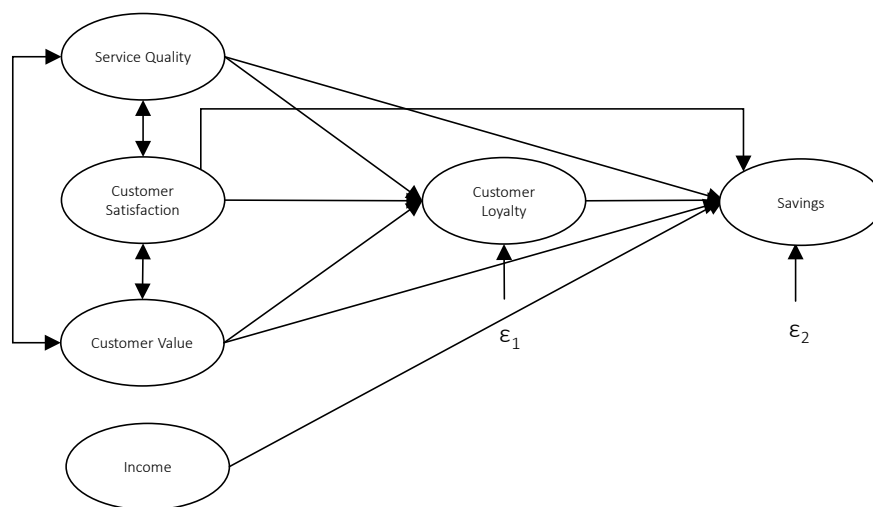


Figure 6. Integrated model

Table 2. Summary of structural path coefficients

Path	Coefficient (β)	t-value	p-value	Result
SQ \rightarrow CL	0.23	4.07	< 0.001	Significant
CS \rightarrow CL	0.41	7.34	< 0.001	Significant
CV \rightarrow CL	0.15	2.80	< 0.01	Significant
SQ \rightarrow S	0.82	15.31	< 0.001	Significant
CS \rightarrow S	0.16	2.80	< 0.01	Significant
CV \rightarrow S	0.06	2.27	< 0.05	Significant
CL \rightarrow S	0.17	2.05	< 0.01	Significant
I \rightarrow S	0.08	2.76	< 0.05	Significant

Note: All hypothesized paths are positive and statistically significant. Service quality exerts the strongest direct effect on household saving behavior ($\beta = 0.82$; $t = 15.31$), followed by customer loyalty ($\beta = 0.17$; $t = 2.05$) and customer satisfaction ($\beta = 0.16$; $t = 2.80$). In addition, service quality ($\beta = 0.23$; $t = 4.07$), customer satisfaction ($\beta = 0.41$; $t = 7.34$), and customer value ($\beta = 0.15$; $t = 2.80$) significantly increase customer loyalty, indicating a partial mediating role of loyalty in translating service experiences into saving behavior. Based on the product-of-coefficients, the estimated indirect effects via loyalty are 0.039 (SQ \rightarrow CL \rightarrow S), 0.070 (CS \rightarrow CL \rightarrow S), and 0.026 (CV \rightarrow CL \rightarrow S), suggesting that the loyalty channel is meaningful alongside the direct effects.

($\beta = 0.82$). This suggests that customers who perceive higher service quality in their Islamic bank are more likely to translate positive service experiences into disciplined saving practices. This result aligns with prior evidence in Islamic financial services showing that service excellence strengthens trust, relationship quality, and behavioral engagement, which can support saving-related decisions (Asnawi et al., 2019; Abror et al., 2019; Zeitun & Anam, 2024). Moreover, the findings indicate that service quality not only shapes satisfaction and loyalty but also translates into measurable financial behavior.

The significant impact of customer satisfaction and perceived value on both loyalty and saving behavior reflects the multidimensional nature of customer-bank relationships. The relationship between satisfaction and loyalty ($\beta = 0.41$) is particularly robust, confirming earlier empirical findings by Fernandes and Pinto (2019) and Ali and Rumzi Tausif (2018). These studies established that satisfaction is a core determinant of continued engagement with financial institutions.

Customer loyalty also emerged as a key mediator in the model. Its positive effect on saving behavior ($\beta = 0.17$) indicates that loyal customers are more inclined to maintain consistent savings with their Islamic bank. This supports the observations by Roberts-Lombard and Petzer (2024) and Suhartanto et al. (2019), who demonstrated that loyalty, often driven by emotional and moral alignment with Islamic principles, strengthens long-term financial commitment.

Income, while having a modest direct effect ($\beta = 0.08$), remains a significant factor, confirming the conventional economic understanding that higher income levels enhance the capacity to save. However, this relationship is also influenced by behavioral and perceptual variables, as observed by Alfaro and Chauvin (2017) and Hayat and Tahir (2021), who argue that macroeconomic conditions and financial system design shape income's effect on savings.

Another important dimension of the discussion concerns the interplay between religiosity and financial literacy. As highlighted by Abiodun Oladapo (2024) and Maryam (2023), Islamic banking customers often make financial decisions based on both religious values and their understanding of financial products. Although religiosity was not directly tested in the present model, the high sensitivity of saving behavior to service quality and satisfaction suggests that customers interpret quality and ethical compliance as intertwined.

Moreover, the use of SEM in this study enabled the identification of both direct and indirect relationships, offering a holistic understanding of behavioral patterns. This methodological approach aligns with previous recommendations by Rivera et al. (2018), Hair et al. (2017), and Murrar et al. (2024), who advocate for SEM in financial behavior research due to its ability to model latent variables and complex interactions.

When comparing these findings with those of Ali and Rumzi Tausif (2018) and Fernandes and Pinto

(2019), it becomes evident that while digital banking and mobile services can improve convenience and engagement, sustainable saving behavior is more likely when these channels are accompanied by consistent service quality, satisfaction-building experiences, and relationship-strengthening practices that foster loyalty.

Overall, the results of this study are in strong alignment with existing literature while also contributing to a more integrated, context-specific model of saving behavior in the Islamic banking sector. These insights offer practical implications for Islamic banks seeking to enhance customer relationships, loyalty, and savings mobilization strategies.

These findings provide robust empirical support for the integrated model linking service quality, satisfaction, and customer value to loyalty and household saving behavior in the Islamic banking context. They also confirm the central role of perceived service quality and customer-related factors in mobilizing household savings. Household saving behavior in Indonesia's Islamic banking sector is predominantly driven by service-related and relational factors rather than income alone. The structural model explains a substantial proportion of the variance in saving behavior ($R\text{-squared} = 0.55$), indicating that customers' saving decisions are strongly shaped by institutional interactions and perceived banking performance. This finding reinforces the growing body of literature suggesting that in developing economies with a dual banking system, behavioral and trust-based determinants play a critical role in financial decision making.

Service quality stands out as the most significant factor influencing household savings, showing a particularly strong direct impact. This result indicates that customers' trust in Islamic banking as a secure and dependable place to store their money greatly depends on the quality of services provided, which encompasses reliability, responsiveness, assurance, and compliance with Sharia principles. In Islamic banking, service quality includes both efficiency in operations and moral principles. These elements work together to build trust in the institution and promote consistent saving habits. This result aligns with relationship marketing the-

ory and research in Islamic finance, which highlight trust (*amanah*) and credibility as key factors influencing customers' financial involvement.

Customer satisfaction and customer value are shown to have a considerable impact on saving behavior, both directly and indirectly, by fostering customer loyalty. The solid relationship between customer satisfaction and loyalty shows that regularly meeting customer expectations – especially in terms of transparency, fairness, and dependable service – enhances long-lasting relationships between banks and their customers. Although customer value appears to have a lesser impact, this finding indicates that customers of Islamic banks may place greater importance on non-financial aspects, like ethical compatibility and adherence to religious principles, rather than focusing solely on financial gains. This strengthens the viewpoint that customers of Islamic banking make decisions based on a framework that combines economic benefits with ethical values.

Customer loyalty serves as a mediator in converting good service experiences into concrete savings behavior. By maintaining long-term savings relationships and showing more dedication to their bank, loyal customers are more likely to support the stability of their savings. This finding is consistent with the viewpoint of behavioral finance and relationship banking, which emphasizes loyalty as a factor in the development of good financial practices and the reduction of switching behavior via recurrent favorable interactions.

In the Islamic banking context, income alone is insufficient to account for household savings behavior, as demonstrated by its statistically significant but relatively small impact. This outcome suggests that better service quality and stronger customer interactions might partially make up for income restrictions, allowing more people from low- and middle-income households to save. From a policy standpoint, this conclusion highlights the significance of institutional quality and customer-centric banking practices in promoting financial inclusion and savings mobilization.

Together, these results are empirically sound evidence that saving behavior is shaped by a special behavioral framework that values ethical

trustworthiness, relational continuity, and better service. The findings emphasize the necessity for Islamic banks to prioritize service quality improvement and relationship management as key strategies for boosting deposit mobilization. However, this study has limitations, such as dependence on self-reported data, which restricts

causal conclusions. Future research could extend this work by using longitudinal methodologies, including comparative analyses with conventional banks, or integrating additional behavioral factors, such as financial literacy and religiosity, to improve our understanding of savings behavior in Islamic banking.

CONCLUSION

This study aims to empirically investigate the impact of service quality, customer satisfaction, customer value, customer loyalty, and income on household saving behavior in Indonesia's Islamic banking sector. Based on structural equation modeling using a survey of 260 customers, the results indicate that service quality, satisfaction, and value strongly build up customer loyalty, while all five factors have significant direct effects on the savings rate. Service quality has the most significant effect on saving behavior, and the structural model accounted for 55% of the variance in household savings, which is considered substantial explanatory power.

These findings suggest that, in mobilizing household savings, Islamic banks should give equal emphasis to service excellence and customer-oriented strategies, together with efforts to enhance the financial capability of customers. Improvement in perceived service quality and value will not only reinforce customer loyalty but also result in more active and sustained saving behavior. Policymakers and practitioners can use these findings to design programs that combine service-quality improvements, financial education, and product innovation targeted at Islamic banking clients. Further research may consider additional behavioral or macroeconomic factors or expand the analysis to other regions and countries to gain a deeper understanding of household saving behavior in dual banking systems.

AUTHOR CONTRIBUTIONS

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Resources: Asmiyati Khusnul Maryam, Dinan Fathi Shiddieqy.

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ACKNOWLEDGMENT

The authors are thankful to the Deanship of Graduate Studies and Scientific Research at University of Bisha for supporting this work through the Fast-Track Research Support Program.

USE OF AI TOOLS

The authors used generative AI tools only as auxiliary support for language editing. Specifically, ChatGPT (OpenAI) and QuillBot were employed to improve English grammar and clarity, and to assist in translating some parts of the text from Indonesian into English. All research ideas, study design,

data collection, data analysis, interpretation of results, and conclusions were developed by the authors. The AI tools were not used to generate data, results, references, or substantive scientific content, and all AI-assisted text was carefully checked and revised by the authors, who take full responsibility for the final manuscript.

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