International Journal of Business Analytics and Intelligence
13 (1) 2025, 01-08
www.publishingindia.com/ijbai/
https://doi.org/10.21863/ijbai/2025.13.1.001

Submitted: 25 February, 2025
Accepted: 27 March, 2025

Impact of Bank Account Holding Period on Artificial Intelligence-Driven Financial Assistant Adoption Factors and Behavioural Intention to Use AIFA Among Banking Customers

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Abstract

Artificial intelligence-powered financial assistants offer a 24/7, easily available service that includes insights into spending patterns; savings plan recommendations and even answers to questions about banking-related duties. By combining convenience, individualised services and enhanced operational performance, the banking industry's use of AI-powered financial assistants is completely changing the way financial services are provided. The banking industry's most recent use of new technology is the use of AI-powered financial assistant services. As more customers are inclining towards tech-based services, the aim of the present study is to examine the impact of demographic variable i.e., Bank Account Holding Period on the customer's adoption factors of AI-driven financial assistant. The study is based on primary data collected through an adapted questionnaire that contains the six major adoption factors of AI-driven financial assistants such as performance expectancy, effort expectancy, social influence, facilitating conditions, personal innovativeness, trust and behavioural intention to use AI-driven financial assistant. The data has been collected from banking customers of Haryana through a survey. ANOVA has been used to identify the findings and the result of the study depicts that customers' adoption factors of effort expectancy, social influence, facilitating conditions, trust and personal innovativeness differ significantly based on Bank Account Holding Period, but performance expectancy does not differ significantly. Furthermore, behavioural intention to use AIFA also distinguishes between groups based on the length of time that a bank account has been held. Banks and other financial institutions will have a better understanding of their customer's base as per the findings of this study.

Keywords: Artificial Intelligence (AI), Banks, AI-Driven Financial Assistant, Customers Adoption Factors, Behavioural Intention to Use AIFA

Introduction

One important technological development that is revolutionising the banking business is the use of Artificial Intelligence (AI)-driven financial assistant services (Patil & Kulkarni, 2019). Financial institutions may improve customer service, streamline processes and provide individualised banking experiences with the use of these AI-powered solutions (Bhattacharya & Sinha, 2022). These AI assistants can effectively manage duties including responding to consumer inquiries, giving financial advice, processing transactions and making customised product recommendations by utilising machine learning algorithms, natural language processing and data analytics (Vedapradha & Ravi, 2021). Real-time analysis of massive volumes of financial data by

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AI-driven financial assistants allows them to help with decision-making and produce more accurate forecasts (Vijai, 2018). In addition to increasing operational effectiveness, this technology lessens the need for manual intervention and human error. AI assistants provide consumers a 24/7, easily accessible service that includes insights into their spending patterns, recommendations for savings strategies and even assistance with investment management (Richad et al., 2019).

Additionally, AI can improve financial transaction security by identifying abnormal activity and possible fraud, making banking services safer for users (Soni, 2019; Venkatesan & Sumathi, 2019). The banking industry's use of AI-powered financial assistants is transforming the provision of financial services by providing a combination of enhanced operational performance, tailored services and convenience (Patil & Kulkarni, 2019).

Objectives of the Study

- To examine the impact of Bank Account Holding Period on the customer's adoption factors of AI-driven financial assistant.
- To examine the impact of Bank Account Holding Period on the behavioural intention to use AI-driven financial assistance.

Literature Review

- As customers place value on factors like time, performance, simplicity of use, security and safety, performance expectations, effort expectations and perceived credibility have a substantial impact on their behavioural intentions regarding innovative banking products (Gundes & Sazkaya, 2018).
- The adoption behaviour of digital payment systems is positively impacted by economic value, technical know-how, security and privacy (Mishra & Ghumre, 2020).
- In Nigeria, the intention to keep using e-banking services is strongly correlated with satisfaction, which is favourably correlated with AI quality (Dantsoho et al., 2021).
- Due to its convenience and time savings, chatbot advisor adoption intentions in financial services are influenced by a number of factors, including perceived risk, perceived privacy, enjoyment, social influence and perceived strength of control (Patil & Kulkarni, 2019).
- Because chatbot technology facilitates financial transactions with banks due to its usefulness and ease of use, behavioural intention was influenced by innovativeness, perceived usefulness, perceived ease of use and attitude towards using the chatbot (Richad et al., 2019).
- Perceived privacy risks decreased user satisfaction, whereas information, entertainment, media appeal and social presence positively predicted user satisfaction. User satisfaction also positively impacted customer loyalty and continued use of chatbot services (Cheng & Jiang, 2020).
- Customer experience is impacted by the quality of the information, services and systems (Trivedi, 2019).

Research Methodology

- The study is based on primary data collected through a questionnaire that contains the six major adoption factors of AI-driven financial assistants, such as performance expectancy, effort expectancy, social influence, facilitating conditions, personal innovativeness and trust to use AI-driven financial assistant along with dependent variable as behavioural intention to use AI-driven financial assistants.
- The data has been collected from 374 banking customers of Haryana through a survey.
- Secondary data has been gathered from magazines, books, journals and websites to complement the primary data.
- Statistical tools such as ANOVA have been used to analyse the customer adoption factors of AI-driven financial assistants and the impact of demographic variable, i.e., Bank Account Holding Period on these adoption factors and behavioural intention to use AI-driven financial assistants.
- The Levene's test statistics have been used to check the assumption of homogeneity of variances and accordingly, F statistics and the Welch test have been used to identify the significant difference among the groups of different adoption factors.

- To know the exact differences among the groups, a Post-Hoc test with the Tukey method has been applied when the assumption of homogeneity of variances is not violated, and the Games Howell method has been applied when the assumption of homogeneity of variances is violated.

Hypothesis of the Study

H1: There is significant difference between the performance expectancy of AIFA on the basis of Bank Account Holding Period of the respondents.

H2: There is significant difference between the effort expectancy of AIFA on the basis of Bank Account Holding Period of the respondents.

H3: There is significant difference between the social influence of AIFA on the basis of Bank Account Holding Period of the respondents.

H4: There is significant difference between the facilitating conditions of AIFA on the basis of Bank Account Holding Period of the respondents.

H5: There is significant difference between the trust of AIFA on the basis of Bank Account Holding Period of the respondents.

H6: There is significant difference between the personal innovativeness of AIFA on the basis of Bank Account Holding Period of the respondents.

H7: There is significant difference between the behavioural intention to use AIFA on the basis of Bank Account Holding Period of the respondents.

Results and Discussion

Demographic Profile of Respondents

This section contains the findings and interpretation of the survey conducted regarding customer adoption factors and behavioural to use AI-driven Financial Assistant as follows:

Table 1: Demographic Attributes of Respondents

	Categories	*Frequency*	*Percentage*	*Cumulative Percentage*
Bank Account Holding Period	Less than 5 Years	85	22.7	22.7
	5-10 Years	73	19.5	42.2
	More than 10 Years	216	57.8	100.0
	Total	374	100.0	

Source: Field survey data.

The above Table 1 explains the findings of the frequency and percentage analysis of demographic attributes of 374 respondents who responded to the study. The result of the study found that a large percentage of customers belong to the Bank Account Holding Period of more than 10 years (57.8%), followed by the group of less than 5 years (22.7%) and the group of 5–10 years (19.5%).

Comparison of the Customer Adoption Factors and Behavioural Intention to use AIFA on the Basis of Bank Account Holding Period

Table 2: Analysis of Variance Across the Bank Account Holding Period of Banking Customers

Customer Adoption Factors	*Levene Statistic*	*Sig.*	*F Value*	*Sig.*	*Welch*	*Sig.*	*Hypothesis (Accepted/ Rejected)*
Performance Expectancy	1.083	.340	2.493	.084	NA		Rejected
Effort Expectancy	.912	.403	5.993	.003	NA		Accepted

Customer Adoption Factors	Levene Statistic	Sig.	F Value	Sig.	Welch	Sig.	Hypothesis (Accepted/ Rejected)
Social Influence	3.659	.027	NA		4.745	.010	Accepted
Facilitating Conditions	6.926	.001	NA		7.098	.001	Accepted
Trust	1.069	.345	3.281	.039	NA		Accepted
Personal Innovativeness	6.114	.002	NA		12.349	.000	Accepted
Behavioural Intention to use AIFA	.606	.546	5.734	.004	NA		Accepted

The results of the Table 2 shows that the Levene's test statistics for adoption factors such as performance expectancy, effort expectancy and trust were found to be insignificant which means the assumption of homogeneity of variances is not violated, so Anova F Statistics results are considered to find out the significant difference among the groups across Bank Account Holding Period. Similarly, the behavioural intention to use AIFA also found it insignificant which means the assumption of homogeneity of variances is not violated, so Anova F Statistics results are considered to find out the significant difference among the groups across Bank Account Holding period.

The Levene's test statistics for adoption factors as social influence, facilitating conditions and personal innovativeness are found significant, which means the assumption of homogeneity of variances is violated, so the Welch test results have been considered to identify the significant difference among the groups across Bank Account Holding period.

The result of the Anova F Statistics shows that there is no significant difference for the customer's adoption factors performance expectancy among the different groups on the basis of Bank Account Holding Period, hence H1 is rejected. The result of the Anova F Statistics shows that there is significant difference for the customer's adoption factors effort expectancy, and trust among the different groups on the basis of Bank Account Holding Period; hence, H2 and H5 are both accepted, and further Post-Hoc Analysis among different groups has been done with the Tukey HSD Method.

The result of the Welch test shows that there is significant difference for the customer's adoption factors social influence, facilitating conditions and personal innovativeness among the different groups on the basis of Bank Account Holding Period, hence H3, H4 and H6 are accepted and further Post-Hoc Analysis among different groups has been done with Games Howell Method.

The result of the Anova F Statistics also shows that there is significant difference for the dependent variable behavioural intention to use AIFA among the different groups on the basis of Bank Account Holding Period, hence H7 is accepted, and further Post-Hoc Analysis among different groups has been done with Tukey HSD Method.

Table 3: Multiple Comparisons with Tukey HSD Method for Effort Expectancy Regarding AIFA Across Bank Account Holding Period

Customers Adoption Factors	(I) Bank Account Holding Period	(J) Bank Account Holding Period	Mean Difference (I-J)	Sig.
Effort Expectancy	Less than 5 Years	5-10 Years	-.43895*	.006
		More than 10 Years	-.34131*	.008
	5-10 Years	Less than 5 Years	.43895*	.006
		More than 10 Years	.09763	.692
	More than 10 Years	Less than 5 Years	.34131*	.008
		5-10 Years	-.09763	.692

* The mean difference is significant at the 0.05 level.

The Table 3 shows that as for effort expectancy regarding AIFA, there is significant differences found between group having bank account holding period as less than 5 years group and from 5 to 10 years group and also between less than 5 years group and more than 10 years group. However, there are no significant differences found when comparing the groups having a bank account holding period from 5 to 10 years and more than 10 Years.

Table 4: Multiple Comparisons with Tukey HSD Method for Trust Regarding AIFA Across Bank Account Holding Period

Customers Adoption Factors	*(I) Bank Account Holding Period*	*(J) Bank Account Holding Period*	*Mean Difference (I-J)*	*Sig.*
Trust	Less than 5 Years	5-10 Years	-.37736*	.038
		More than 10 Years	-.24685	.113
	5-10 Years	Less than 5 Years	.37736*	.038
		More than 10 Years	.13051	.576
	More than 10 Years	Less than 5 Years	.24685	.113
		5-10 Years	-.13051	.576

* The mean difference is significant at the 0.05 level.

The Table 4 shows that for Trust regarding AIFA, there are significant differences found between group having bank account holding period as less than 5 years group and from 5 to 10 years group. However, there are no significant differences found when comparing the groups having a bank account holding period from less than 5 years group and more than 10 years group and also from 5 to 10 years group and more than 10 years group.

Table 5: Multiple Comparisons with Games-Howell Method for Social Influence Regarding AIFA Across Bank Account Holding Period

Customers Adoption Factors	*(I) Bank Account Holding Period*	*(J) Bank Account Holding Period*	*Mean Difference (I-J)*	*Sig.*
Social Influence	Less than 5 Years	5-10 Years	-.44210*	.008
		More than 10 Years	-.31337*	.037
	5-10 Years	Less than 5 Years	.44210*	.008
		More than 10 Years	.12873	.502
	More than 10 Years	Less than 5 Years	.31337*	.037
		5-10 Years	-.12873	.502

* The mean difference is significant at the 0.05 level.

The Table 5 shows that as for social influence regarding AIFA, there is significant differences found between group having bank account holding period as less than 5 years group and from 5 to 10 years group and also between less than 5 years group and more than 10 years group. However, there are no significant differences found when comparing the groups having bank account holding period from 5 to 10 years and more than 10 years.

Table 6: Multiple Comparisons with Games-Howell Method for Facilitating Conditions Regarding AIFA Across Bank Account Holding Period

Customers Adoption Factors	*(I) Bank Account Holding Period*	*(J) Bank Account Holding Period*	*Mean Difference (I-J)*	*Sig.*
Facilitating Conditions	Less than 5 Years	5-10 Years	-.56116*	.001
		More than 10 Years	-.35248*	.022
	5-10 Years	Less than 5 Years	.56116*	.001
		More than 10 Years	.20868	.150
	More than 10 Years	Less than 5 Years	.35248*	.022
		5-10 Years	-.20868	.150

* The mean difference is significant at the 0.05 level.

The Table 6 shows that as for facilitating conditions regarding AIFA, there is significant differences found between group having bank account holding period as less than 5 years group and from 5 to 10 years group and also between less than 5 years group and more than 10 years group. However, there are no significant differences found when comparing the groups having a bank account holding period from 5 to 10 years and more than 10 years.

Table 7: Multiple Comparisons with Games-Howell Method for Personal Innovativeness Regarding AIFA Across Bank Account Holding Period

Customers Adoption Factors	*(I) Bank Account Holding Period*	*(J) Bank Account Holding Period*	*Mean Difference (I-J)*	*Sig.*
Personal Innovativeness	Less than 5 Years	5-10 Years	-.66211*	.000
		More than 10 Years	-.48512*	.000
	5-10 Years	Less than 5 Years	.66211*	.000
		More than 10 Years	.17699	.168
	More than 10 Years	Less than 5 Years	.48512*	.000
		5-10 Years	-.17699	.168

* The mean difference is significant at the 0.05 level.

The Table 7 shows that as for personal innovativeness regarding AIFA, there is significant differences found between group having bank account holding period as less than 5 years group and from 5 to 10 years group and also between less than 5 years group and more than 10 years group. However, there are no significant differences found when comparing the groups having a bank account holding period from 5 to 10 years and more than 10 years.

Table 8: Multiple Comparisons with Tukey HSD Method for Behavioural Intention to Use AIFA Across Bank Account Holding Period

Dependent Variable	*(I) Bank Account Holding Period*	*(J) Bank Account Holding Period*	*Mean Difference (I-J)*	*Sig.*
Behavioural Intention to use AIFA	Less than 5 Years	5-10 Years	-.26548	.145
		More than 10 Years	-.38303*	.002
	5-10 Years	Less than 5 Years	.26548	.145
		More than 10 Years	-.11755	.588
	More than 10 Years	Less than 5 Years	.38303*	.002
		5-10 Years	.11755	.588

* The mean difference is significant at the 0.05 level.

The Table 8 shows that as for behavioural intention to use AIFA there are significant differences found between group having bank account holding period as less than 5 years group and more than 10 years group. However, there are no significant differences found when comparing the groups having bank account holding period from less than 5 years and from 5 to 10 years and also no significant difference found between from 5 to 10 years group and more than 10 years group.

Conclusion

The present study focuses on examining the impact of Bank Account Holding Period on the customer's adoption factors of AI-driven financial assistant as well as on the behavioural intention to use AI-driven financial assistants. The overall result of the present study indicates that on the basis of Bank Account Holding Period, there is a significant difference found in customer's adoption factors of effort expectancy, social influence, facilitating conditions, trust and personal innovativeness while there is no significant difference found in performance expectancy. In addition to this, behavioural intention to use AIFA also differentiates among different groups on the basis of Bank Account Holding Period. The study also depicts that the group having a bank account holding period of less than 5 years is less inclined towards AIFA as compared to the group having a bank account holding period from 5 to 10 years and more than 10 years in almost all the factors of adoption of AIFA due to less innovativeness in their attitude and perceptions regarding the use of the latest advancements in the banking sector.

By taking into account the aforementioned findings, banks can adjust their strategies to more effectively target their customers and enhance their perceptions of their purpose to utilise AI-driven financial assistants, which will enable them to better answer their questions. The current study's findings on AI-powered financial assistant services offer insightful information that helps banks understand their clients better. In the end, this technology helps banks maintain their competitiveness in the fluctuating financial environment.

Limitations of the Study and Directions for Future Work

Due to time constraints, the current study is confined to examining a single demographic variable. The other demographic characteristics of the study can also be taken into consideration for future research. The current study's focus is restricted to Haryana alone. Other states in the nation could host future research projects. The study can also be grouped by the country's geographical regions, including the Eastern, Western, Northern and Southern regions. Other customer adoption factors may also be taken into account in future research.

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