THE HUMAN FACTOR IN INTELLIGENT BANKING: MERGING BEHAVIOURAL FINANCE WITH ARTIFICIAL INTELLIGENCE

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ABSTRACT

In the digital era, the banking industry is undergoing a revolutionary transformation driven by Artificial Intelligence (AI). From automated customer service and risk management to predictive analytics and personalized financial advice, AI has redefined how financial institutions operate. This study aims to explore how the synergy between Behavioural Finance and AI can enhance intelligent banking practices by analysing customer behaviour, improving decision-making, and building stronger trust-based relationships between banks and their customers. The following are the objectives of the study, (i) to analyse the influence of behavioural finance factors on customer decision-making in banking, (ii) to explore how the integration of AI and behavioural finance contributes to intelligent and customer-centric banking, (iii) to identify challenges in merging human behavioural insights with AI-based banking systems, (iv) to find the relationship between AI Adoption and Customer Satisfaction and (v) to suggest strategies for developing emotionally intelligent AI systems in the banking sector. The present study conducted in Coimbatore city, selected the sample respondents in Coimbatore city, adopted convenient sampling method for data collections. The percentage analysis used to present the data and correlation used to find the relationship between AI Adoption and Customer Satisfaction. 188 samples were taken for this study. This study concluded that the human factor remains central to intelligent banking. By merging the analytical power of AI with the psychological understanding of Behavioural Finance, banks can build smarter, fairer, and more human-centered financial ecosystems. This integration will not only enhance operational efficiency but also create a more inclusive and emotionally aware banking environment one that aligns technology with the true essence of human decision-making.

KEYWORDS: Customer service, risk management, predictive analytics, intelligent banking practices and AI Adoption and Customer Satisfaction.

INTRODUCTION

In the digital era, the banking industry is undergoing a revolutionary transformation driven by Artificial Intelligence (AI). From automated customer service and risk management to predictive analytics and personalized financial advice, AI has redefined how financial institutions operate. However, despite these technological advancements, the human factor emotions, biases, and behavioural tendencies continues to play a crucial role in financial decision-making. This brings into focus the integration of Behavioural Finance with Artificial Intelligence, leading to

what may be termed as Intelligent Banking. Behavioural Finance explains how psychological factors such as overconfidence, risk aversion, loss aversion, and herding behaviour influence financial decisions. When combined with AI's data-driven precision and predictive capabilities, banks can better understand customer behaviour, design customized products, and mitigate financial risks arising from irrational decisions. Thus, merging AI with behavioural insights can help create more human-centered, adaptive, and efficient financial systems.

This study aims to explore how the synergy between Behavioural Finance and AI can enhance intelligent banking practices by analysing customer behaviour, improving decision-making, and building stronger trust-based relationships between banks and their customers.

STATEMENT OF THE PROBLEM

Although Artificial Intelligence has improved efficiency and accuracy in banking operations, it often lacks an understanding of the emotional and behavioural aspects of customers. Financial decisions are rarely made based on pure logic; they are deeply influenced by cognitive biases and psychological patterns. Current AI models focus largely on transactional and numerical data, ignoring the human dimensions that drive financial behaviour. This creates a gap between technological intelligence and human behaviour, leading to misjudgement in risk assessment, poor personalization of services, and limited emotional engagement with customers. Therefore, there is a need to explore how AI systems can be enhanced by integrating behavioural finance principles to develop a more holistic and intelligent banking experience that balances data accuracy with emotional intelligence.

OBJECTIVES OF THE STUDY

1. The following are the objectives of the study.
2. To analyze the influence of behavioural finance factors on customer decision-making in banking.
3. To explore how the integration of AI and behavioural finance contributes to intelligent and customer-centric banking.
4. To identify challenges in merging human behavioural insights with AI-based banking systems.
5. To find the relationship between AI Adoption and Customer Satisfaction.
6. To suggest strategies for developing emotionally intelligent AI systems in the banking sector.

SAMPLING AND TOOLS AND TECHNIQUES

The present study conducted in Coimbatore city, selected the sample respondents in Coimbatore city, adopted convenient sampling method for data collections. The percentage analysis used to present the data and correlation used to find the relationship between AI Adoption and Customer Satisfaction. 188 samples were taken for this study.

SCOPE OF THE STUDY

The study focuses on the integration of behavioural finance concepts with AI applications in the banking industry. It explores both the technological and psychological dimensions of intelligent banking. The scope includes examining customer behaviour patterns, decision biases, and AI tools used for predictive analytics, credit assessment, fraud detection, and personalized financial services. Geographically, the study may focus on public and private sector banks in India, with an emphasis on how these institutions use AI to enhance customer experience while accounting for behavioural tendencies. The research will also analyze customer perception, trust, and acceptance of AI-based financial decisions.

ANALYSIS AND INTERPRETATION

I. Awareness of Artificial Intelligence in Banking

Table 1
Awareness of Artificial Intelligence in Banking

Sl. No.	Level of Awareness	Number of respondents	Percentage

1	High level	98	52.13
2	Moderate level	66	35.11
3	Low level	24	12.76
	Total	188	100

Source: Computed data

The above table presents the awareness of Artificial Intelligence in Banking, out of 188 samples, ninety eight (52.13%) respondents felt high level of awareness of artificial intelligence in banking. Sixty six (35.11%) respondents felt moderate level of awareness of artificial intelligence in banking and remaining twenty four (12.76%) respondents felt low level of awareness of artificial intelligence in banking. Majority (52.13%) of the respondents are felt high level of awareness of artificial intelligence in banking.

II. Perception of AI's Role in Decision-Making

Table 2

Perception of Artificial Intelligence in Decision Making

Sl. No.	Perception	Number of respondents	Percentage
1	More accuracy and fairness	104	55.32
2	Biased or impersonal	53	28.19
3	Uncertain	31	16.49
	Total	188	100

Source: Computed data

The above table presents the perception of Artificial Intelligence in Decision Making. Out of 188 samples, one hundred and four (55.32%) respondents felt more accuracy and fairness. Fifty three (28.19%) respondents felt biased or impersonal decision making and remaining thirty one (16.49%) respondents felt uncertain of Perception of Artificial Intelligence in Decision Making. Majority (55.32%) of the respondents felt more accuracy and fairness of Artificial Intelligence in Decision Making

III. Influence of Behavioural Factors on Financial Decisions

Table 3

Influence of Behavioural factors on financial decisions

Sl. No.	Influence of Behavioural factors on financial decisions	Number of respondents	Percentage
1	Emotions and peer influence	97	51.60
2	Rational	68	36.17
3	No emotions and peer influence	23	12.23
	Total	188	100

Source: Computed data

The above table presents the Influence of Behavioural factors on financial decisions, out of 188 samples, ninety seven (51.60%) respondents felt emotions and peer Influence of Behavioural factors on financial decisions. Sixty eight (36.17%) respondents felt rational Influence of Behavioural factors on financial decisions and remaining twenty three (12.23%) respondents felt no emotions and peer influence of Influence of Behavioural factors on financial decisions. Majority (51.60%) of the respondents felt emotions and peer Influence of Behavioural factors on financial decisions.

IV. Customer Trust in AI-Based Banking Services

Table 4

Customer Trust in AI based Banking service

Sl. No.	Customer Trust in AI based Banking service	Number of respondents	Percentage
1	AI driven tools for basic services	86	45.74

2	Financial decisions	61	32.45
3	Loans and etc	41	21.81
	Total	188	100

Source: Computed data

The above table presents the customer trust in AI based banking service. Out of 188 samples, eighty six (45.74%) respondents felt AI driven tools for basic services. Sixty one (32.45%) respondents said financial decision are customer trust in AI based banking services and remaining forty one (21.81%) respondents said loans and other operations are customer trust in AI based banking services. Majority (45.74%) respondents are felt AI driven tools for basic services for customer trust in AI based banking services.

V. Impact of AI on Customer Experience

Table 5
Impact of AI on Customer Experience

Sl. No.	Impact of AI on Customer Experience	Number of respondents	Percentage
1	Customer convenience through faster responses	113	60.11
2	Personalized services	54	28.72
3	Lack of empathy and human touch	21	11.17
	Total	188	100

Source: Computed data

The above table presents the impact of AI on customers experience, out of 188 samples, one hundred and thirteen (60.11%) respondents felt customer convenience through faster responses of impact of AI. Fifty four (28.72%) respondents felt personalized services improved with AI and remaining twenty one (11.17%) respondents felt lack of empathy and human touch with impact of AI. Majority (60.11%) of the respondents felt customer convenience through aster responses.

VI. Challenges in Integrating Behavioural Finance with AI

Table 6
Challenges in Integrating Behavioural Finance with AI

Sl. No.	Challenges in Integrating Behavioural Finance	Number of respondents	
		Yes (%)	No (%)
1	Lack of emotional understanding in AI systems	65	35
2	Data privacy concerns	58	42
3	High cost of AI implementation	52	48
4	Limited behavioural data availability	46	54

Source: Computed data

The above table shows the challenges in integrating behaviour finance, out of 188 samples, 65% of the respondents agreed that lack of emotional understanding of AI systems and remaining not agreed that lack of emotional understanding of AI systems. 58% of the respondents agreed that data privacy is challenges in integrating behavioural finance and remaining 42% of the respondents not agreed that data privacy is challenges in integrating behavioural finance. 52% of the respondents agreed that high cost of AI implementation in behavioural finance and remaining 48% of the respondents not agreed that high cost of AI implementation in behavioural finance. 46% of the respondents agreed that AI behavioural finance has limited behavioural data availability and remaining 54% of the respondents not agreed that high cost of AI implementation in behavioural finance.

Correlation

VII. AI adoption and Customer Satisfaction

Table 7

Correlation : Relationship between AI Adoption and Customer Satisfaction

		AI Adoption	Customer Satisfaction
AI Adoption	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	188	
Customer Satisfaction	Pearson Correlation	.893**	1
	Sig. (2-tailed)	.000	
	N	188	188

**. Correlation is significant at the 0.01 level (2-tailed)

There is positive and significant relationship between AI adoption and customer satisfaction at 1% significant level. Hence, AI adoption in behavioural finance increase the customers satisfaction.

SUGGESTIONS

1. Integrate Human Emotions into AI Systems

Banks should design AI algorithms that consider emotional and behavioural data, such as spending habits, risk tolerance, and financial stress indicators. Emotionally intelligent AI systems can provide more personalized and empathetic financial advice.

2. Promote Behavioural Finance Training for AI Developers

AI professionals in the banking sector should receive basic training in behavioural finance to understand how psychological factors influence financial decisions. This interdisciplinary approach ensures that AI models reflect real human behaviour.

3. Enhance Transparency and Explainability of AI Decisions

Banks should ensure that AI-based recommendations and credit scoring systems are transparent. Explaining the reasoning behind AI decisions will build trust among customers and reduce the fear of algorithmic bias.

4. Use AI for Financial Education and Awareness

AI-powered chatbots and digital assistants can be used to educate customers about investment behaviour, risk perception, and common biases. This can promote rational financial decision-making and reduce impulsive behaviour.

5. Strengthen Data Ethics and Privacy Protection

As AI relies on large volumes of customer data, banks must adopt strict data governance policies to maintain customer trust and comply with data protection regulations such as GDPR and RBI guidelines.

6. Encourage Collaboration between Behavioural Economists and Technologists

Banks should form interdisciplinary teams comprising AI specialists, behavioural scientists, and financial analysts to develop well-rounded intelligent banking systems that blend human insight with machine precision.

7. Personalize Banking Experience through Behavioural Insights

By combining AI analytics with behavioural profiling, banks can offer customized financial products, tailored investment suggestions, and targeted marketing strategies that match each customer's personality and financial goals.

8. Invest in Customer-Centric AI Infrastructure

Financial institutions must prioritize investments in AI technologies that enhance customer experience such as emotion detection, voice analytics, and sentiment analysis to humanize digital interactions.

9. Develop Responsible AI Policies

Banks should implement frameworks for ethical AI use, ensuring that AI systems do not reinforce human biases or make discriminatory decisions in lending, hiring, or investment recommendations.

10. Continuous Monitoring and Feedback Systems

AI systems must be regularly evaluated using customer feedback to ensure they remain fair, effective, and aligned with human financial behaviour patterns.

CONCLUSION

The integration of behavioural finance and Artificial Intelligence (AI) represents a transformative shift in the future of the banking industry. While AI brings precision, speed, and analytical strength, Behavioural Finance adds depth, understanding, and emotional intelligence to financial decision-making. Together, they form the foundation of Intelligent Banking, where technology not only automates processes but also understands and responds to human behaviour. The study reveals that the success of AI in banking depends largely on its ability to interpret human emotions, biases, and preferences. When AI systems are designed with behavioural insights, they can foster greater customer trust, deliver personalized experiences, and improve decision accuracy. However, challenges such as data privacy, ethical concerns, and lack of human empathy must be addressed through responsible AI governance and collaborative innovation.

The human factor remains central to intelligent banking. By merging the analytical power of AI with the psychological understanding of Behavioural Finance, banks can build smarter, fairer, and more human-centered financial ecosystems. This integration will not only enhance operational efficiency but also create a more inclusive and emotionally aware banking environment one that aligns technology with the true essence of human decision-making.

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