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A RESEARCH PROPOSAL ON
ASSESSING THE AUTOMATED TELLER MACHINE (ATM)
SERVICE QUALITY OF COMMERCIAL BANK OF
ETHIOPIA (CBE) IN ADDIS ABABA

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ABSTRACT

This research aims to evaluate the quality of Automated Teller Machine (ATM) services offered by the Commercial Bank of Ethiopia (CBE) in Addis Ababa. The primary objective is to analyze customer perceptions and satisfaction levels regarding CBE's ATM services, ultimately striving to enhance service quality and boost customer retention. The study provides a comprehensive understanding of user experiences by examining key factors such as reliability, responsiveness, ease of use, security and privacy, convenience, and overall service fulfillment. A mixed-methods approach was employed to collect data, incorporating both surveys and interviews with customers in Addis Ababa. The findings highlight the significant role of improving ATM service quality in fostering customer satisfaction and loyalty. This study not only provides actionable insights for CBE to improve its service offerings, but it also proposes tactics for improving the whole banking experience for customers in Ethiopia. The study included 384 respondents chosen using Kothari's (2004) sample size selection technique, with a fantastic return rate of 93.75% from 360 successfully returned questionnaires, which formed the foundation of the analysis and interpretation. The study found that overall customer satisfaction obtained a modest rating (mean score: 3.5984), indicating area for development in terms of ease and overall satisfaction with CBE services. To improve the CBE's ATM services in Addis Ababa, constant monitoring, user-friendly design, high security, and increased accessibility through better placement and support should be addressed.

Key words: Reliability, Responsiveness, Ease of use, Security and Privacy, Convenience and Fulfillment

Introduction

The banking sector plays a vital role in the socio-economic development of a country, providing essential financial services and fostering economic growth. In Ethiopia, the Commercial Bank of Ethiopia (CBE) stands as the largest financial institution, pioneering modern banking practices. One of its key advancements has been the introduction of Automated Teller Machines (ATMs), which aim to improve banking accessibility and efficiency. However, despite its leading position, Ethiopia's banking system still faces challenges in electronic banking adoption, with issues such as ATM availability, connectivity, cash shortages, and customer education gaps affecting service quality and satisfaction. This study assesses the service quality of CBE's ATMs in Addis Ababa and its impact on customer satisfaction (Chillimuntha, 2011).

The Ethiopian banking system remains underdeveloped compared to global standards, necessitating the modernization of banking services through advanced technology. CBE introduced ATM services in 2001, starting with eight machines in Addis Ababa. Over time, the bank expanded its ATM network and began offering services such as cash withdrawals, balance inquiries, mini statements, fund transfers, and PIN changes. Despite these advancements, infrastructure limitations and customer awareness issues hinder the full utilization of ATM services. Addressing these challenges is crucial for enhancing customer satisfaction and improving overall banking efficiency in Ethiopia (financial institute, 2014; electronic banking, 2014; Allen et al., 2001; Kantono, 2009).

ATM service quality is a critical factor influencing customer satisfaction. Various studies have identified key dimensions of ATM service quality, including reliability, responsiveness, and ease of use, security, convenience, and fulfillment. Reliability refers to the consistent performance of ATMs, while responsiveness relates to the speed and efficiency of transactions. Ease of use ensures that customers can navigate the system without difficulties, and security measures protect against fraud and unauthorized access. Convenience involves the accessibility and availability of ATMs, and fulfillment measures whether ATMs meet customer expectations. These dimensions collectively determine the overall customer experience (ATM market, 2013; Worku, 2010).

Customer satisfaction is a key performance indicator in banking, reflecting how well a financial institution meets its customers' expectations. Studies suggest that satisfaction with ATM services is influenced by transaction speed, convenience, security, and machine functionality. Customers expect ATMs to be operational at all times, provide secure transactions, and offer user-friendly interfaces. When these expectations are met, customer loyalty and positive word-of-mouth promotion increase. However, service disruptions, such as machine breakdowns and cash shortages, lead to customer frustration and dissatisfaction, underscoring the need for continuous service improvements (ATM market, 2013; Worku, 2010).

Several empirical studies have explored ATM service quality in banking. Research by Johnson and Reinartz (2006) highlighted the importance of reliability and security in shaping customer satisfaction and loyalty. Sadeque, Pathan, and Gaur (2019) examined ATM services in Bangladesh, identifying transaction speed and convenience as crucial factors. Similarly, Zeithaml, Parasuraman, and Malhotra (2002) emphasized the role of responsiveness and assurance in improving customer perceptions. These studies provide valuable insights that can be applied to evaluating the ATMs operated by CBE in Addis Ababa, helping to enhance service quality and customer satisfaction.

This study explores the relationship between ATM service quality dimensions and customer satisfaction within the Commercial Bank of Ethiopia's (CBE) ATM network. The conceptual framework centers on critical service quality indicators such as reliability, responsiveness, ease of use, security, convenience, and fulfillment. Prior research indicates that enhancing these dimensions of service quality contributes to increased customer satisfaction, loyalty, and retention. By identifying areas in need of improvement, this study aims to offer valuable insights for enhancing ATM services in Ethiopia, ultimately ensuring customers experience efficient, secure, and dependable banking services.

The primary objective of this study is to assess the quality of ATM services and customer satisfaction at CBE in Addis Ababa. Key areas of focus include the reliability of ATMs, transaction responsiveness, ease of use, security and privacy measures, and overall convenience for users. The research evaluates essential metrics such as uptime percentages, error rates, transaction speed, and accuracy to ensure consistent service availability and an improved user

experience. Additionally, customer feedback on ATM usability, navigation, and accessibility is analyzed, while security measures are examined to ensure compliance with data protection regulations. The study also looks into factors like ATM location, operating hours, and support services to further enhance accessibility and customer convenience. The significance of this research lies in its potential to help CBE improve ATM service quality, raise awareness about the benefits of ATM services, identify challenges and limitations, and provide a foundation for future research. This study is focused on assessing CBE's ATM services in Addis Ababa through surveys, interviews, and observations from customer perspectives. The findings aim to contribute to improving ATM service delivery and provide recommendations to overcome challenges within the banking sector. The research is organized into five chapters: introduction, literature review, research methodology, data analysis, and conclusions with recommendations.

Methodology

This study aimed to assess the Automated Teller Machine (ATM) service quality of the Commercial Bank of Ethiopia (CBE) in Addis Ababa, employing a survey research design. The research focused on gathering data from customers using CBE's ATMs, utilizing convenience and simple random sampling techniques to select participants. A sample size of 384 was calculated using Kothari's formula, and data was collected through structured questionnaires administered to customers during banking hours. The study included both primary data, gathered through surveys and interviews with CBE customers, and secondary data from organizational records and existing literature.

Data analysis involved both qualitative and quantitative methods using SPSS software. Descriptive statistics, such as frequency and percentages, were employed to analyze the quantitative data, while multiple regression analysis was used to assess the relationship between ATM service quality dimensions and customer satisfaction. Pearson's correlation coefficient and multiple linear regressions were used to test the interdependence between independent variables (service quality dimensions) and the dependent variable (customer satisfaction). Reliability and validity tests were also conducted, with Cronbach's Alpha scores indicating high internal consistency for the various service quality dimensions.

Ethical considerations were integral to the study, ensuring that participants' privacy was respected, and their data kept confidential. Informed consent was obtained from all participants, and the study adhered to ethical standards by maintaining objectivity and proper acknowledgment of all sources. A pilot test was conducted to assess the reliability of the questionnaire, and Cronbach's Alpha scores indicated satisfactory reliability for the various constructs of service quality.

Data Presentation, Analysis and Interpretation

A total of 384 respondents were selected using Kothari's sample size determination formula, with 360 successfully returned questionnaires, yielding a return rate of 93.75%. Demographic data were analyzed using SPSS Version 26, and respondents were categorized by age, gender, education, and ATM usage experience. The majority of respondents were aged 25-34 (31.7%), followed by those aged 35-44 (25.6%), and 54.4% of respondents were female. Educational qualifications varied, with 36.7% holding a bachelor's degree and 33.6% having completed high school. In terms of ATM usage, 51.9% had 1-3 years of experience, and 41.4% had used ATMs for 4-6 years. The study's findings highlight the diverse demographic background of the respondents and their varied experience with ATM services.

descriptive statistics of variables

Descriptive Statistics				
	N	Mean	Std. Deviation	Variance
Reliability	360	4.2583	.27815	.077
Responsiveness	360	4.2461	.22239	.049
Convenience	360	3.5014	.21600	.047
Ease of use	360	3.9833	.25500	.065
Security and Privacy	360	4.2153	.35626	.127
Fulfillment	360	4.3944	.17976	.032
Customer Satisfaction	360	3.5984	.20992	.044

Source: researcher's 2025 personal survey,

The descriptive statistics from the survey of 360 participants provide valuable insights into customer experiences with the Commercial Bank of Ethiopia (CBE) in Addis Ababa. Overall, respondents expressed positive perceptions of CBE's services, particularly valuing the bank's reliability, which received a mean score of 4.2583, and its responsiveness to customer needs, with a mean score of 4.2461, both reflecting a consistent and favorable experience. Customers also rated the security and privacy measures highly, with a mean score of 4.2153, indicating a strong sense of safety. The ease of use of the services was positively rated at 3.9833, and the level of fulfillment achieved was also high, with a mean score of 4.3944, signaling satisfaction with specific aspects of the service. However, the convenience of CBE's services received a more moderate rating of 3.5014, and overall customer satisfaction was rated at 3.5984, suggesting areas for improvement in enhancing convenience and overall satisfaction.

Correlation analysis

The Pearson Product-Moment Correlation Coefficient is a statistical measure used to assess the strength and direction of the relationship between two variables. It ranges from -1.00 to +1.00, with the sign indicating the direction of the relationship. A positive correlation suggests a direct positive relationship between the variables, while a negative correlation indicates an inverse, negative relationship (Ruud et al., 2012).

Correlation analysis

Control Variables		Customer Satisfaction	
-none ^a	Reliability	Correlation	.267
		Significance (2-tailed)	.000
		df	358
	Responsiveness	Correlation	.152
		Significance (2-tailed)	.004
		df	358
	Convenience	Correlation	.929
		Significance (2-tailed)	.000
		df	358

	Ease of use	Correlation	.112
		Significance (2-tailed)	.033
		df	358
	Security and Privacy	Correlation	.136
		Significance (2-tailed)	.010
		df	358
	Fulfillment	Correlation	.163
		Significance (2-tailed)	.002
		df	358
	Customer Satisfaction	Correlation	1.000
		Significance (2-tailed)	.
		df	0

Source: researcher's 2025 personal survey,

The correlation table highlights the relationships between various factors—Reliability, Responsiveness, Convenience, Ease of Use, Security and Privacy, Fulfillment—and Customer Satisfaction in the context of customer interactions with Commercial Bank of Ethiopia (CBE) in Addis Ababa. The data reveals several significant positive correlations with customer satisfaction. Reliability shows a moderate positive correlation of 0.267, while Responsiveness has a slightly weaker correlation of 0.152. Convenience stands out as the strongest driver of customer satisfaction, with an exceptionally high correlation of 0.929. Additionally, Security and Privacy, Fulfillment, and Ease of Use also demonstrate positive correlations, albeit weaker, with customer satisfaction. These findings provide valuable insights for CBE, identifying key factors that influence customer satisfaction and offering a guide for improving specific aspects of their services to enhance the overall customer experience.

Regression analysis

Regression analysis is a systematic method that can be used to investigate the relationship of one or more predictor variables on dependent variable. That is, it allows us to make statements about how well one or more independent variables predict the value of a dependent variable. Specifically this multiple regression was conducted in order to investigate the effect overall bundle of selected title the assessments of ATM service quality and customer

satisfaction by taking the case of CBE in Addis Ababa.

Multiple Regression Analysis

Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.974 ^a	.948	.947	.04840
a. Predictors: (Constant), Fulfillment, Ease of use, Convenience, Security and Privacy, Responsiveness, Reliability				

Source: researcher's 2025 personal survey,

The model summary presents the results of the regression analysis examining the relationship between various predictors (Fulfillment, Ease of Use, Convenience, Security and Privacy, Responsiveness, Reliability) and the dependent variable, Customer Satisfaction, within the context of customer interactions with Commercial Bank of Ethiopia (CBE) in Addis Ababa. Key statistics from the analysis reveal a strong positive correlation between the predictors and customer satisfaction, with an R value of 0.974. The R Square value of 0.948 indicates that approximately 94.8% of the variance in customer satisfaction can be explained by the selected predictors. The adjusted R Square of 0.947 confirms the model's high goodness of fit, considering the number of predictors used. With a standard error of 0.04840, the model demonstrates a high level of accuracy in predicting customer satisfaction. These results suggest that the regression model is highly effective in explaining and forecasting customer satisfaction, highlighting the significant role of the selected predictors in shaping the customer experience with CBE. The high R Square value further emphasizes the model's ability to capture the variations in satisfaction, providing valuable insights for improving customer experience within the banking context.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.992	6	2.499	1066.555	.000 ^b
	Residual	.827	353	.002		
	Total	15.820	359			

a. Dependent Variable: Customer Satisfaction
b. Predictors: (Constant), Fulfillment, Ease of use, Convenience, Security and Privacy, Responsiveness, Reliability

Source: researcher's 2025 personal survey,

The ANOVA table presents a detailed analysis of the regression model's variance, focusing on the relationship between predictors (Fulfillment, Ease of Use, Convenience, Security and Privacy, Responsiveness, Reliability) and the dependent variable, Customer Satisfaction, in the context of customer interactions with Commercial Bank of Ethiopia (CBE) in Addis Ababa. The results indicate a highly significant regression model, as evidenced by a substantial F-value of 1066.555 and a p-value of 0.000. This suggests that the predictors collectively play a crucial role in predicting customer satisfaction levels and that the relationship observed is unlikely to be attributed to random chance. The model explains a significant portion of the variance in customer satisfaction, with the predictors contributing meaningfully to the understanding and prediction of customer satisfaction within the banking environment of CBE in Addis Ababa.

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.427	.095		4.478	.000		
	Reliability	.250	.020	.331	12.440	.000	.209	4.778
	Responsiveness	.446	.019	.472	23.400	.000	.364	2.750
	Convenience	.900	.012	.926	72.025	.000	.897	1.115
	Ease of use	.018	.010	.021	1.688	.092	.915	1.093
	Security and Privacy	.158	.013	.268	12.061	.000	.301	3.327
	Fulfillment	.500	.027	.429	18.260	.000	.269	3.719

a. Dependent Variable: Customer Satisfaction

Source: researcher's 2025 personal survey,

The coefficients table outlines the impact of various factors on Customer Satisfaction within the Commercial Bank of Ethiopia (CBE) in Addis Ababa. Key findings reveal that Reliability, Responsiveness, Convenience, Security and Privacy, and Fulfillment significantly influence Customer Satisfaction levels. Notably, Convenience stands out as a dominant driver, with a high coefficient of 0.900 and a strong positive impact. Reliability and Responsiveness also play crucial roles, demonstrating positive relationships with Customer Satisfaction. Security and Privacy, as well as Fulfillment, exhibit notable impacts as well. However, Ease of Use appears to have a weaker influence on Customer Satisfaction based on its coefficient and t-value. These insights can guide CBE in prioritizing areas such as convenience, reliability, and responsiveness to enhance customer satisfaction and overall service quality effectively.

The Commercial Bank of Ethiopia (CBE) employs various strategies to enhance the quality and effectiveness of its ATM services in Addis Ababa. To ensure reliability, CBE closely monitors uptime percentages and error rates, addressing operational disruptions and improving the overall efficiency of its ATM network. The bank also evaluates responsiveness through transaction monitoring software and customer feedback to optimize transaction speed and accuracy. Usability testing and customer feedback mechanisms help the bank assess ease of use, allowing for continuous improvements to navigation, screen readability, and accessibility. CBE further strengthens security and privacy by conducting regular security audits, using encryption technologies, and implementing strict access controls to protect customer data and comply with data protection regulations.

In terms of convenience, CBE prioritizes strategic ATM placements in accessible locations, extending operating hours, and providing support services to enhance customer accessibility and convenience. The availability of on-site assistance and customer service hotlines ensures quick resolutions to any issues customers may face. Additionally, the bank focuses on accommodating customers with disabilities by incorporating accessibility features like Braille keypads and audio instructions. These comprehensive efforts reflect CBE's commitment to improving customer satisfaction by ensuring reliable, responsive, secure, easy-to-use, and convenient ATM services in Addis Ababa.

Summary

This study assessed the ATM service quality and customer satisfaction at the Commercial Bank of Ethiopia (CBE) in Addis Ababa, based on responses from 360 participants. The research utilized SPSS V-26 software for data analysis, focusing on key aspects such as reliability, responsiveness, ease of use, security, privacy, and convenience. The demographic profile of the participants revealed a diverse sample, with the majority falling within the 25-34 age group. Most respondents had at least a high school education, and the majority had 1-6 years of experience using ATMs. Descriptive statistics indicated that while customers rated the bank's reliability and responsiveness positively, convenience received a moderate score. Additionally, ease of use and security/privacy measures were also positively rated, whereas overall customer satisfaction was moderate, suggesting room for improvement, especially in terms of convenience.

The correlation analysis highlighted that convenience was the most significant factor impacting customer satisfaction, with strong positive correlations also observed for reliability, security, and fulfillment. The regression analysis further confirmed the importance of convenience, reliability, and responsiveness in enhancing customer satisfaction, with the model explaining nearly 95% of the variance in customer satisfaction. The study also provided a comprehensive analysis of the strategies employed by CBE to ensure high-quality ATM services, including the monitoring of uptime, error rates, transaction speed, accuracy, and security measures. Recommendations for enhancing customer satisfaction were based on the findings from these analyses.

Conclusion

The evaluation of the reliability of ATMs at the Commercial Bank of Ethiopia involves analyzing uptime percentages and error rates to ensure consistent service availability. By closely monitoring these metrics, the bank can identify patterns of disruptions and address potential issues promptly to fortify the reliability of its ATM network. This systematic approach enables

Commercial Bank of Ethiopia to maintain uninterrupted service for customers, enhancing trust and satisfaction in their banking experiences. Through rigorous analysis of uptime percentages and error rates, the bank can proactively manage and improve the operational efficiency of its ATMs, ultimately providing a reliable and dependable service to its customers in Addis Ababa.

Investigating the responsiveness of ATMs in Addis Ababa is crucial for enhancing customer experience and operational efficiency. By measuring transaction speed and accuracy, Commercial Bank of Ethiopia can optimize the performance of its ATMs to meet customer needs effectively. Understanding the responsiveness of ATM transactions allows the bank to identify bottlenecks, ensure swift and accurate service delivery, and enhance overall customer satisfaction. This focus on responsiveness not only improves the efficiency of ATM services but also contributes to a seamless and positive customer experience, reinforcing the bank's reputation for providing reliable and responsive services in the banking sector.

Assessing the ease of use of ATMs provided by Commercial Bank of Ethiopia through user feedback surveys plays a vital role in identifying areas for improvement in navigation and accessibility features. Gathering insights directly from customers allows the bank to understand user preferences, pain points, and suggestions for enhancing the usability of its ATM network. By actively soliciting feedback and incorporating user-centric design principles, the bank can refine its ATM services to meet the evolving needs and expectations of customers in Addis Ababa. This focus on ease of use not only enhances customer satisfaction but also improves the overall user experience, making banking transactions more intuitive and user-friendly.

Analyzing the security and privacy measures of ATMs in Addis Ababa is essential to ensure compliance with data protection regulations and safeguard customer information. Commercial Bank of Ethiopia employs robust security audits, encryption technologies, and access control mechanisms to protect sensitive data and mitigate security risks effectively. By enforcing stringent security measures, the bank can enhance customer trust, maintain data confidentiality, and uphold regulatory compliance. This commitment to security and privacy not only protects customer information but also strengthens the overall integrity and reliability of ATM services provided by the bank in Addis Ababa.

Evaluating the convenience of ATMs in terms of their locations, operating hours and availability of support services is key to enhancing accessibility and convenience for customers in Addis Ababa. By prioritizing strategic ATM placements, extended operating hours, and responsive support services, Commercial Bank of Ethiopia aims to optimize the accessibility and convenience of its ATM network. Providing convenient access to ATMs in accessible locations and ensuring round-the-clock service availability enhances customer convenience, satisfaction, and overall banking experience. This customer-centric approach to convenience underscores the bank's commitment to delivering user-friendly and inclusive ATM services in Addis Ababa.

Recommendations for Enhancing ATM Services at the Commercial Bank of Ethiopia:

- **Continuous Monitoring and Improvement:**
 - Implement a robust system for continuous monitoring of uptime percentages and error rates.
 - Regularly analyze these metrics to promptly identify and address disruptions, ensuring consistent service availability and improved operational efficiency.
- **Enhanced Responsiveness:**
 - Optimize transaction speed and accuracy by identifying and addressing bottlenecks in ATM transactions.
 - Focus on streamlining transaction processes to ensure swift and accurate service delivery, improving customer satisfaction and operational efficiency.
- **User-Centric Design and Ease of Use:**
 - Conduct regular user feedback surveys to gather insights on ATM navigation and accessibility features.
 - Incorporate user-centric design principles to enhance ATM usability, making banking transactions more intuitive and user-friendly for customers.
- **Security and Privacy Enhancements:**
 - Continue investing in robust security audits, encryption technologies, and access control mechanisms.
 - Maintain stringent security measures to protect customer information, reinforce trust, ensure data confidentiality, and comply with data protection regulations.
- **Convenience Optimization:**

- Evaluate ATM locations, operating hours, and availability of support services to enhance accessibility and convenience.
- Prioritize strategic ATM placements, extended operating hours, and responsive support services to optimize the overall convenience and accessibility of the ATM network.

By implementing these recommendations, the Commercial Bank of Ethiopia can further enhance the reliability, security, and customer-centricity of its ATM services, leading to improved customer trust, satisfaction, and loyalty.

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