THE EFFECT OF DIGITAL CREDIT RISK MANAGEMENT ON CREDIT PERFORMANCE (IN THE CASE OF DASHEN BANK SC)



COLLEGE OF BUSINESS AND ECONOMICS

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A RESEARCH THESIS SUBMITED TO DEPARTMENT OF ACCOUNTING AND FINANCE, COLLEGE OF BUSINESS AND ECONOMICS, DIRECTOR OF GRADUATE STUDIES, ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN ACCOUNTING AND FINANCE

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Addis Ababa, ETHIOPIA

Declaration

I declare this Research thesis entitled “The Effect of Digital Credit Risk Management on credit performance (In the case of Dashen Bank Sc)” is my own Work and has not been submitted for any degree or examination in any other University.

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Advisor'sapproval sheet

Statement of Declaration

I, the undersigned, declare that this thesis is my original work; prepared under the guidance of **Abebaw Kassie (Ph.D.)**All resources used in this proposal have been duly acknowledged. I further confirm that the proposal and thesis have not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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StatementofCertification

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As members of the Examining Board of the Final MSc Open Défense, we undersignedcertifiedthatwehavereadandevaluatedthethesisentitled *"The Effect of Digital Credit Risk Management on credit performance (In the case of Dashen Bank Sc)"* by Rekik Laikeandexaminedthecandidate.Werecommendthatthethesisbeacceptedas fulfillingthethesisrequirement for thedegreeof Master ofSince in Accounting and Finance.

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ABSTRACT

This study looks at how digital credit risk management affects credit performance at Dashen Bank S.C. As digital services become more common in banking, managing credit well in a digital setting is important for safe lending and financial stability. The research focuses on six main digital practices used by the bank: automated credit scoring, digital loan processing, credit risk monitoring, automated collections, risk dashboards, and following rules and regulations.

A mix of numbers and opinions was used to study these practices. Data was collected from 81 people working at the bank, and other sources were used to give a wider view. The results, based on regression analysis, show that following regulations has the biggest impact on credit performance, followed by automated scoring and risk dashboards. The study also found that people have different views about digital risk tools, which shows the need for better systems, more openness, and stronger data protection.

The study shows that digital tools play a big role in improving credit management. To get the most out of these tools, Dashen Bank should focus on being transparent, training staff well, and keeping up with changing rules to support safe lending and long-term growth.

Key words: Digital credit risk management, credit performance, financial stability, credit portfolio management

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ACRONYMS

CSA	Central Statistical Agency
MSEs	Micro and Small Enterprises
NBE	National Bank of Ethiopia
NGO	Non-Governmental Organizations
OECD	The Organization for Economic Cooperation and Development

CHAPTER ONE

1. INTRODUCTION

This chapter provides the general overview of the study; accordingly, it included the following nine sections: the first section is background of the study, which gives some insight on the concern of credit risk management, the second section is the statement of the problem part that shows the direction of the study, give explanation to the motive of carry out this study. Subsequent to this, research questions, general and specific objectives of the study, significance of the study, scope of the study and operational definition of terms are present.

1.1 Background of the Study

Risk can be defined as the potential for loss or negative consequences resulting from uncertain events or circumstances (Salman, 2021). In the context of the banking industry, credit risk refers to the probability that borrowers or counterparties will not meet their financial obligations, leading to potential losses for the bank (Metawa et al., 2023). On the other hand, digitalization refers to the adoption and integration of digital technologies and processes in various aspects of business operations (KPMG, 2020).

Digital credit risk management refers to the practices and strategies used by financial institutions to manage and mitigate the risks associated with digital credit, which is the extension of credit to individuals or businesses through digital channels such as mobile phones or online platforms. Digital credit risk management involves the use of various techniques and tools to assess the creditworthiness of borrowers, check loan repayment, and manage default risk. It also involves the use of data analytics and machine learning algorithms to find patterns and trends in borrower behaviour and to make more informed credit decisions. Effective digital credit risk management is critical for financial institutions to ensure the sustainability and profitability of their digital credit operations, while also protecting themselves and their customers from financial losses due to default or fraud. (Kanapickiene and Spicas, 2019).

In the dynamic and rapidly evolving digital era, organizations are confronted with unprecedented challenges when it comes to managing the various risks applicable to their digital assets, sensitive data, and critical. Integration of new and emerging technologies into existing operations has a penetrative effect on the business due to the interconnected nature of today's business along with the exponential growth of data.

Collectively, these have given rise to complex and evolving risks that can have severe consequences for the business and its stakeholders. Therefore, effectively managing digital risk has appeared as a critical function for organizations running and looking to enhance their digital infrastructure (Nirooj F., 2024).

The rapid expansion of digital financial services, including mobile lending and online loan platforms, has transformed the credit landscape in Ethiopia (Abebe et al., 2021). These digital credit solutions offer the potential to increase financial inclusion by providing access to credit for previously underserved segments of the population (Demissie & Teferra, 2020). However, the proliferation of digital credit services has also raised concerns about the effectiveness and oversight of credit risk management practices employed by these platforms.

In the traditional banking system, credit risk management involves well-established processes and procedures, such as thorough credit assessments, collateral requirements, and ongoing monitoring of borrower behavior (Pessarossi & Weill, 2013). The transition to digital credit services has disrupted these conventional approaches, as lenders increasingly rely on alternative data sources, algorithms, and automated decision-making to evaluate and manage credit risk (Jagtiani & Lemieux, 2019).

While digital credit solutions can improve efficiency and expand access, Ethiopia's limited experience and weak regulatory systems raise concerns about how reliable and suitable these practices are (Aga & Reilly, 2016). These challenges are especially important for banks like Dashen Bank S.C., which are adopting digital credit risk management tools. This study aims to examine how six specific digital credit risk management strategies used by Dashen Bank affect its credit performance. By focusing on a real-world case, the research helps to understand how digital practices are working in Ethiopia and what improvements are needed to support safe and sustainable lending.

1.2 Statement of the Problem

The increasing adoption of digital credit services in Ethiopia has highlighted several key concerns regarding the effectiveness of credit risk management practices employed by these platforms. The regulatory framework governing digital credit services in Ethiopia may not be sufficiently developed to ensure appropriate risk management, data privacy, and consumer protection (Aga & Reilly, 2016; Demissie & Teferra, 2020). The lack of clear guidelines and oversight mechanisms could leave borrowers vulnerable to predatory lending practices and expose the financial system to systemic risks.

Digital lenders in Ethiopia often rely on alternative data sources, such as mobile usage patterns and social media activity, to assess the creditworthiness of borrowers (Jagtiani & Lemieux, 2019; Abebe et al., 2021). However, the accuracy and reliability of these credit scoring algorithms in the Ethiopian context are not well-established, potentially leading to the exclusion of creditworthy individuals or the inclusion of high-risk borrowers.

Technology is making a tremendous impact on service companies in general and the financial services sector is no exception. the application of information and communication technology concepts, techniques, policies, and implementation strategies for banking services has become a subject of fundamental importance and concern to all banks and indeed a prerequisite for local and Global competitiveness in the banking industry. The increasing reliance on digital systems and data in the credit decision-making process exposes the financial sector to potential cyber threats, data breaches, and privacy violations (Aga & Reilly, 2016; Demissie & Teferra, 2020).

These risks can undermine the trust and stability of the financial system, particularly in a context where digital literacy and cyber resilience may not be fully developed. While expanding financial inclusion is a laudable goal, there is a need to balance this objective with the implementation of responsible lending practices (Pessarossi & Weill, 2013; Jagtiani & Lemieux, 2019). Unregulated or irresponsible digital lending can lead to over-indebtedness, particularly among vulnerable populations, with broader implications for financial stability and social welfare. Addressing these challenges is crucial for enhancing the effectiveness and resilience of digital credit risk management in Ethiopia, thereby supporting the overall stability and growth of the financial sector and protecting the interests of all stakeholders.

Ethiopia's digital credit market has expanded rapidly, driven by increased internet penetration and a growing mobile user base. Various fintech companies have emerged, providing services ranging from microloans to peer-to-peer lending. According to a report by the National Bank of Ethiopia (2021), the sector has witnessed exponential growth, but this growth has outpaced regulatory measures. The regulatory framework for digital credit in Ethiopia is fragmented and lacks coherence. Key institutions, including the National Bank of Ethiopia (NBE) and the Ministry of Innovation and Technology, have responsibilities that are not clearly defined. As noted by Ayele and Zewde (2022), the absence of a comprehensive regulatory body specifically for digital finance leads to inconsistencies and potential consumer risks.

Research indicates that customers of Dashen Bank's digital credit services often face challenges related to transparency in loan terms, including interest rates and repayment conditions. Tesfaye (2023) emphasizes the need for clearer disclosure practices to protect consumers. Besides, the literature highlights that while Dashen Bank collects significant amounts of consumer data, there are insufficient regulations governing data privacy and security. Alemayehu (2022) points out that without stringent data protection measures, customers are vulnerable to data breaches

In summary, the existing literature highlights the lack of a strong regulatory framework for digital credit services in Ethiopia. While some studies mention cyber risks and data privacy, few provide a detailed assessment of how specific digital credit risk management practices such as automated credit scoring, digital monitoring systems, and regulatory compliance influence credit performance in Ethiopian banks. There is limited research that connects these digital tools to practical outcomes in credit management. Therefore, this study aims to fill that gap by examining how Dashen Bank's use of six digital credit risk strategies affects its credit performance. By focusing on a real-world case, the research provides evidence on the effectiveness of digital risk practices and offers insights for improving financial stability and responsible lending in Ethiopia.

1.3. Basic Research questions

1. What is the effect of automated credit scoring on the credit performance of Dashen Bank S.C.?
2. How do digital loan origination processes influence the efficiency and effectiveness of credit performance?
3. In what ways do digitize credit risk monitoring systems and risk management dashboards help Dashen Bank manage credit risk and improve performance?
4. How does automated credit collection impact repayment rates and overall credit performance?
5. How does regulatory compliance contribute to improving the credit performance of Dashen Bank?

1.4. Objective of the Study

1.4.1 General objective

The primary aim of this study is to examine the effect of digital credit risk management on credit performance in case of Dashen bank S.C.

1.4.2 Specific objectives

In addition to the general objective, the study has the following specific objectives:

- ✓ To assess the impact of automated credit scoring on the overall credit performance of Dashen Bank S.C.
- ✓ To evaluate the effects of digital loan origination processes on the efficiency and effectiveness of credit performance.
- ✓ To investigate the influence of digitized credit risk monitoring systems on the bank's ability to manage credit risk and enhance performance.
- ✓ To analyse the role of automated credit collections in improving repayment rates and overall credit performance.
- ✓ To examine how risk management dashboards assist in monitoring and improving credit performance metrics at Dashen Bank.
- ✓ To explore the significance of regulatory compliance in enhancing the credit 1.6. Significance of the study

The study the effect of digital credit risk management on credit performance, particularly focusing on Dashen Bank S.C., is crucial for understanding the factors that influence lending decisions and overall credit health within the institution. By identifying key determinants such as economic conditions, borrower characteristics, and risk management practices, the research can provide valuable insights into the dynamics of credit performance. This understanding is essential for enhancing the bank's ability to make informed lending decisions, ultimately leading to improved financial stability and growth.

Moreover, this study can serve as a benchmark for evaluating Dashen Bank's credit policies and practices against industry standards. By analysing both internal and external factors that affect credit performance, the bank can identify areas for improvement and optimize its lending strategies. This process not only helps in mitigating risks but also enables the bank to tailor its products and services to better meet the needs of its customers, fostering stronger relationships and increasing customer satisfaction.

Finally, the findings of this research can contribute to the broader academic and financial community by providing empirical evidence the effect of digital credit risk management on credit in digital banking contexts. As the banking sector increasingly shifts towards digital solutions, understanding these determinants can help other financial institutions develop effective credit risk management frameworks. Overall, this study is essential for Dashen Bank not only to enhance its operational efficiency but also to adapt to the evolving financial landscape and maintain a competitive edge.

1.5. Scope of the Study

The study is focused on the examine the effect of digital credit risk management on credit performance in case of Dashen bank S.C.at its head office in Addis Ababa, Ethiopia. It delves into the specific risk management strategies and procedures implemented by the bank to mitigate credit risks effectively. The research conducted within the bank's headquarters, providing an in-depth analysis of its credit risk management framework. The study has incorporated six independent variables and one dependent variable on multiple regression and correlation analysis. However, the study's findings may have limited generalizability to other regions due to the localized nature of the research. Moreover, the availability and willingness of Dashen Bank S.C. to share data on their digital credit risk management practices could pose a limitation. To address this potential limitation, the study aimed to offer transparency and confidentiality assurances to encourage participation and data sharing from the bank.

1.5.1 Theoretical

The study draws upon existing theories and models of credit risk assessment, digital lending, and risk management strategies to evaluate the effectiveness of Dashen Bank S. C's digital credit risk management practices.

1.5.2 Methodological

The study's methodological scope may involve a combination of qualitative and quantitative methods, such as interviews with bank officials, analysis of internal documents and reports, customer surveys, and statistical analysis of loan performance data.

1.5.3 Geographical

The geographical scope of the study focuses on Dashen Bank S.C, which runs within ADDIS ABEBA HEAD OFFICE DASHEN BANK S.C. The research primarily examines the digital credit risk management practices within the context of Dashen Bank S.C.'s operations and may consider any relevant regional or country-specific factors that could influence those practices. The study's findings may be limited by the sample size of Dashen Bank S. C's digital credit operations. If the sample is small or not representative of the entire population, it may affect the generalizability of the results to other branches or financial institutions.

1.5.4. Variable scope

The study aimed to address six digital credit risk management practice i.e. Automated credit scoring include the integration of alternative data sources (e.g., mobile phone usage, social media data) to enhance the accuracy of credit scoring models. Secondly, digital loan origination and application processes which includes the utilization of e-KYC (electronic Know-Your-Customer) processes to streamline customer onboarding and identity verification. Thirdly, Digitized credit Risk Monitoring and Early Warning Systems which include the integration of external data sources (e.g., economic indicators, industry trends) to enhance the bank's ability to proactively manage credit risk. Fourthly, Automated Credit collections and debt recovery processes include utilization of data-driven insights to optimize credit collections strategies and improve recovery rates. On the other hand, Integrated Risk management dashboards and reporting which includes utilization of data visualization tools to enhance the bank's ability to analyze and interpret credit risk data. Finally, Regulatory compliance and reporting automation and it includes leveraging of digital technologies to enhance the accuracy, timeliness, and transparency of credit risk-related disclosures and reporting.

1.6. Limitations of the study

The study may have some limitations that may impact its findings and generalizability. First, the sample size of 81 respondents, drawn exclusively from Dashen Bank, may not adequately represent the broader employee perspectives within the organization. Secondly, the availability and quality of data are critical factors that may affect the analysis. Incomplete or unreliable data could skew results, making it challenging to draw definitive conclusions about the effectiveness of digital credit risk management practices. Time constraints also limited the depth of investigation into various aspects of these practices, potentially leaving important factors unexamined. Additionally, the focus on a single institution restricts the generalizability of findings to other banks or financial institutions, which may operate under different regulatory and operational frameworks. Finally, access to proprietary data and internal documents may have constrained the study’s comprehensive assessment of Dashen Bank's digital risk management strategies, further limiting the robustness of the insights derived from the research.

1.7. Organization of the Study

The report is divided into five chapters. The first chapter provide an introduction to the study, including background information, problem statement, research objectives, hypotheses, significance of the study, and scope of the study. The second chapter focused on the literature review, incorporating theoretical and empirical perspectives, as well as a summary of the literature. The third chapters discuss the research approach, methods, data collection, and analysis techniques employed in the study. Finally, the last chapters present the conclusion and recommendations based on the findings.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

This chapter has both a Theoretical and Empirical review of the study. The theoretical framework includes a definition of digital credit, the background of digital credit, the background of digital technology, digital credit development in Ethiopia, digital credit risk in Ethiopia's banking industry, the technology employed to provide digital credit service, services available on digital credit, the benefits, and risks of digital credit service practices. in addition, it also includes. Empirical review of the study from different researchers in different countries.

2.1 Theoretical Review

2.1.1 Digital banking

It refers to the use of digital technologies to provide banking services and products to customers through digital channels, such as online banking, mobile banking, and automated teller machines (ATMs). It is a rapidly growing area of banking, driven by the increasing use of digital devices and the need for greater convenience and accessibility in banking services. (Fi. Money, (2023-10-29)).

2.1.2 Digital credit

It refers to a form of credit that is provided and managed through digital channels, such as online platforms, mobile applications, and automated systems. It is characterized by its ability to offer borrowers access to funds quickly, easily, and remotely, often without the need for a formal credit history or physical documentation. (CGAP (Consultative Group to Assist the Poor) (2016)). Digital credit products differ from traditional forms of credit in several ways. For example, they can be applied for, approved, and disbursed remotely, often without any brick-and-mortar infrastructure. Approval is automatic, minimizing the time and number of steps between registration and the distribution of loans. Approval is also instant, often in less

than 72 hours. Digital credit also increasingly considers non-traditional or alternative data to decide creditworthiness, in addition to traditional financial information like credit scores and bank account information. (PAR Technical Reports #351a and 351b (2017)). Digital credit products are rapidly emerging in the digital financial services (DFS) market as a new, innovative form of accessing electronic money.

They are being used by a variety of providers, including banks, mobile network operators, and fintech companies. Digital credit products are also being used in a variety of ways, such as for small business loans, personal loans, and agricultural loans. (CEPR (Center for Economic Policy Research) (2022))

Digital credit is a relatively new and rapidly evolving field, and there is still much to learn about its potential benefits and risks. Some of the key challenges and risks associated with digital credit include high interest rates, multiple fees, short repayment periods, lack of transparency, and the potential for over-indebtedness. There is also a need for effective regulation and consumer protection to ensure that digital credit is used responsibly and fairly. (PAR Technical Reports #351a and 351b (2017)).

2.1.3. Theories of Digital Credit Risk

1. Credit Risk Assessment Theory

Credit risk assessment theory revolves around the methods and tools used to evaluate the likelihood that a borrower will default on a loan. Traditionally, this involved using historical data to create credit scoring models, such as FICO scores, which rely on various factors including payment history, credit utilization, and length of credit history. With the advent of digital technologies, this theory has evolved to incorporate alternative data sources, such as social media activity, mobile phone usage, and transaction patterns. For instance, Khandani et al. (2010) demonstrated that models employing mobile phone metadata could significantly enhance predictive capabilities regarding loan defaults. The integration of machine learning algorithms allows for real-time analysis of borrower behavior, leading to more accurate assessments of credit risk. This evolution emphasizes the importance of data-driven decision-making in digital lending, as lenders can now refine their evaluations to reduce default rates and enhance overall credit portfolio performance.

2. Behavioral Finance Theory

Behavioral finance theory explores how psychological influences and cognitive biases affect the financial decisions of individuals and institutions. This theory posits that borrowers do not always act rationally; instead, their decisions can be swayed by emotions, social pressures, and cognitive biases. In the context of digital credit, this means that lenders must understand borrower behavior beyond traditional financial metrics. For example, Mäkinen and Söderberg (2016) found that factors such as borrower confidence and risk perception can significantly influence credit behavior.

By incorporating insights from behavioral finance, lenders can tailor their risk management strategies to address the specific needs and behaviors of different customer segments. This may involve developing targeted communication strategies, creating more flexible repayment options, or utilizing behavioral nudges to encourage timely repayments.

3. Data Analytics and Machine Learning Theory

This theory emphasizes the transformative power of advanced data analytics and machine learning in credit risk management. As digital lending generates vast amounts of data, traditional risk assessment methods become inadequate. This theory advocates for the use of predictive analytics to identify patterns and trends that can inform credit decisions. Research has shown that machine learning models can process and analyze large datasets more effectively than traditional methods. For instance, Huang et al. (2020) highlighted that incorporating alternative data sources and applying machine learning techniques can improve the accuracy of credit risk predictions by capturing borrower behaviors that conventional scoring models might overlook. This capability not only leads to better risk assessment but can also enhance financial inclusion by enabling lenders to offer credit to previously underserved populations, thereby expanding access to financial services.

4. Regulatory Compliance Theory

Regulatory compliance theory examines the frameworks and standards that govern lending practices, particularly in the digital finance landscape. As digital credit services proliferate, ensuring compliance with legal and regulatory requirements becomes increasingly crucial. This theory posits that adherence to regulations not only mitigates risks related to legal liabilities but also fosters consumer trust and confidence in financial institutions. Effective compliance with regulations, such as data protection laws and consumer rights legislation, is essential for safeguarding sensitive borrower information. Boysen et al. (2022) emphasized that a strong compliance framework can enhance the overall credibility of lending institutions, making them more appealing to customers. As technology continues to evolve,

this theory advocates for adaptive regulatory frameworks that can accommodate new digital lending practices while ensuring consumer protection and ethical lending practices.

2.1.4. Digital Credit Development in Ethiopia

Digital credit development in Ethiopia has been growing, with the introduction of uncollateralized digital credit services like Mela and SANDUK by Tele birr. (Uncollateralized & Digital Credit in Ethiopia: How Far Has It Come and Where is it Going? (2022-12-21)). These services use telecom usage data and TELEBIRR history to decide creditworthiness and credit limits, offering daily, weekly, and monthly lending options.

The Bank of Abyssinia's Apollo platform is also beginning to offer microloans, and Awash Bank has announced it will start issuing credit cards in both secured and unsecured loan forms (Uncollateralized & Digital Credit in Ethiopia: How Far Has It Come and Where is it Going? (2022-12-21)). The Ethiopian National Digital Payments Strategy (NDPS) 2021-2024 is a significant initiative aiming to drive greater efficiency in payments, transparency, women's economic participation, financial inclusion, and sustained inclusive growth. (Ethiopia's National Digital Payments Strategy 2021-2024 (2021)).

The strategy is based on four strategic pillars and four enablers, with the National Bank of Ethiopia (NBE) leading the transformation of the payment ecosystem. However, the Ethiopian banking sector faces challenges in terms of digital payment competitiveness. The country lags many African countries, with a low percentage of digital transactions to GDP and a limited number of ATMs per 100,000 people. (Ethiopia’s Digital Finance Sector: Overcoming Challenges and Driving Financial Inclusion (2023)). Factors affecting the adoption of digital banking in Ethiopia include lack of technological knowledge, lack of management support, shortage of training, infrastructural problems, perceived risk, and economic factors. (What Factors Affect the Adoption of Digital Banking in Ethiopia? (2023-12-22)).

Despite these challenges, the Ethiopian Capital Market Development Project was launched in 2023 to create capital market regulations, improve the effectiveness of the market for government securities, expand the pool of institutional and retail investors domestically, and raise the volume and issuance of capital market transactions. (Capital Market Development Project Launches, Building Digital Skills in Ethiopia (2023-09-08)). This initiative is expected to contribute to the development of digital credit and financial services in Ethiopia.

2.1.5 What is Risk?

Risk can be defined as the potential for loss or negative consequences resulting from uncertain events or circumstances (Salman, 2021). In the context of the banking industry, credit risk refers to the probability that borrowers or counterparties will not meet their financial obligations, leading to potential losses for the bank (Metawa et al., 2023). On the other hand, digitalization refers to the adoption and integration of digital technologies and processes in various aspects of business operations (KPMG, 2020).

It involves using technology to transform traditional methods and systems into more efficient, automated, and data-driven processes (Metawa et al., 2023). The impact of digitalization on credit risk has become a topic of increasing interest and research (Metawa et al., 2023). It is crucial to understand how the adoption of digital technologies in the banking sector affects credit risk and whether there are any mediating factors involved. Financial inclusion, which refers to providing access to financial services and products to individuals and businesses, is one such mediating factor (Metawa et al., 2023). It plays a role in shaping the relationship between digitalization and credit risk by influencing the level of financial engagement and risk exposure of different segments of the population (Metawa et al., 2023).

2.1.6 Digital credit risk

Refers to the potential losses or adverse consequences associated with the use of digital technologies in credit provision and management. It includes various types of risks, such as:

- **Credit risk:** the possibility that borrowers will not repay their loans or fulfill their credit obligations, leading to financial losses for the lender (Kanapickiene and Spicas, 2019).
- **Operational risk:** the risk of losses resulting from inadequate or failed internal processes, systems, or human errors in credit provision and management (Kanapickiene and Spicas, 2019).
- **Fraud risk:** the risk of losses resulting from intentional deceit, misrepresentation, or manipulation in credit provision and management (Kanapickiene and Spicas, 2019).
- Cybersecurity risk: the risk of losses resulting from unauthorized access, theft, or disclosure of sensitive information related to credit provision and management (Kanapickiene and Spicas, 2019).

- Reputation risk: the risk of damage to the lender's reputation or brand due to negative publicity, customer complaints, or other adverse consequences related to credit provision and management (Kanapickiene and Spicas, 2019).

These types of digital credit risks are interrelated and can have significant impacts on the lender's financial performance, reputation, and sustainability (Kanapickiene and Spicas, 2019).

2.1.7 Digital risk management definition

Digital credit risk management refers to the practices and strategies used by financial institutions to manage and mitigate the risks associated with digital credit, which is the extension of credit to individuals or businesses through digital channels such as mobile phones or online platforms. Digital credit risk management involves the use of various techniques and tools to assess the creditworthiness of borrowers, check loan repayment, and manage default risk. It also involves the use of data analytics and machine learning algorithms to find patterns and trends in borrower behavior and to make more informed credit decisions. Effective digital credit risk management is critical for financial institutions to ensure the sustainability and profitability of their digital credit operations, while also protecting themselves and their customers from financial losses due to default or fraud. (Kanapickiene and Spicas, 2019).

In the dynamic and rapidly evolving digital era, organizations are confronted with unprecedented challenges when it comes to managing the various risks applicable to their digital assets, sensitive data, and critical. Integration of new and emerging technologies into existing operations has a penetrative effect on the business due to the interconnected nature of today's business along with the exponential growth of data. Collectively, these have given rise to complex and evolving risks that can have severe consequences for the business and its stakeholders. Therefore, effectively managing digital risk has appeared as a critical function for organizations running and looking to enhance their digital infrastructure. (Author: Nirooj Fidin, Year: 2024)

Whenever a bank undergoes a digital transformation journey, the existing risk management and security practices require to be revamped and reworked to accommodate and mitigate the

new risks brought about by the adoption of new technology. However, at present, many banks focus initially on how to be more digital-move at speed, use data to make decisions, respond rapidly, and think about risk and compliance quite late. To keep up with emerging technologies and their adoption in the banking sector, digital risk management is essential, and the risk management process must be able to adapt and be able to mitigate the risks associated with new technologies. (Nirooj Fidin,: 2024)

Digital risk management in banking involves finding, assessing, and mitigating risks associated with digital technologies and channels. The use of digital technologies, such as mobile banking, online banking, and electronic payments, has significantly transformed the banking industry, but it has also brought new risks and challenges. Similarly, as new-age technologies like blockchain, cloud computing, IoT, Artificial Intelligence, etc. are in vogue and on the verge of being adopted in the banking system, the risk management process must be overhauled accordingly. (Nirooj Fidin, 2024)

Overall, digital credit risk management is a critical part of ensuring the sustainability and profitability of digital credit operations and requires the use of various techniques and tools to assess creditworthiness, check repayment, and manage default risk. The document highlights the importance of financial statements in assessing credit risk but notes that certain limitations can arise in the analysis of credit risk for small and micro-enterprises.

2.1.8 Assessment of Digital Credit Risk Management Practices

The financial landscape is undergoing a significant transformation driven by FinTech companies. These companies disrupt traditional models by offering faster and more accessible credit options (Nthiga, 2017). However, this evolution presents a challenge: credit risk assessment, traditionally reliant on factors like credit history and income, struggles to capture the vast amount of digital data now available (Adzinova et al., 2013).

2.1.9 FinTech's Response: Alternative Data and Machine Learning

To address this challenge, FinTech lenders are pioneering the use of alternative data sources in credit risk assessment. These sources include social media data, transaction history, and mobile phone usage patterns (Huang et al., 2020). Additionally, they are employing machine learning models to use this data for improved credit risk assessment accuracy and efficiency (Gambacorta et al., 2019). While research suggests promise in these practices, several key gaps remain in our understanding.

2.1.10 Ethical Considerations and Explainability

The use of alternative data sources in credit risk assessment raises ethical concerns. Algorithmic bias in machine learning models can lead to unfair lending decisions that disadvantage certain demographics (Mindermann et al., 2018). Furthermore, the lack of interpretability in some models makes it difficult to understand how they arrive at decisions, hindering transparency and trust (Chen et al., 2023). Explainable AI techniques can potentially address these concerns by providing insights into model decision-making processes (Xu et al., 2021; Baesens et al., 2019).

2.1.11 Regulatory Landscape and Responsible Practices

Existing regulations may not fully address the unique challenges posed by digital lending, such as data privacy and algorithmic bias (Huang et al., 2020; Jagtiani et al., 2020). Regulatory frameworks need to adapt to keep pace with the rapid innovation in the FinTech sector (Boysen et al., 2022). Responsible credit risk management goes beyond just financial risk assessment. It also considers social and ethical implications to ensure fair and inclusive access to credit (Li et al., 2020).

2.1.12 Focus on Deep Learning and Explainability

The review highlights the potential of deep learning models for credit risk assessment (Chen et al., 2023). However, their interpretability remains a challenge (Ilava et al., 2021). Further research is needed to explore techniques that can enhance the explainability of deep learning models in this context.

2.2. Credit Risk Management in the Banking Sector

Credit risk is one of the most significant types of financial risk faced by banks, as it arises from the potential for borrowers to default on their loan obligations (Grünberger, 2021). Effective credit risk management is, therefore, a critical function for banks to ensure the stability and profitability of their loan portfolios. Traditional credit risk management approaches typically involve thorough credit assessments, collateral requirements, and ongoing monitoring of borrower creditworthiness (Crouhy et al., 2006).

2.2.1. The Role of Digital Technologies in Credit Risk Management

The rapid advancement of digital technologies has transformed the landscape of credit risk management in the banking sector. Banks are increasingly leveraging a wide range of digital solutions to enhance their credit risk management practices (Zamore et al., 2019). These digital technologies include:

Big Data and Predictive Analytics: Banks are utilizing large datasets and advanced analytics to develop more sophisticated credit scoring models, enabling them to assess borrower creditworthiness with greater accuracy (Moro & Fink, 2013).

Automated Credit Decisioning: Banks are automating the credit approval process through the use of artificial intelligence (AI) and machine learning algorithms, which can process loan applications and make credit decisions more efficiently (Abdou & Pointon, 2011).

Digital Loan Origination: Online and mobile-based loan application platforms allow banks to streamline the loan origination process, reducing the time and effort required for customer onboarding and credit assessment (Lenz, 2016).

Integrated Risk Management Platforms: Banks are implementing centralized, digital risk management systems that provide real-time visibility and reporting on credit risk exposure across the organization (Anagnostopoulos, 2018).

Regulatory Compliance Automation: Digital solutions are facilitating the automation of credit risk-related regulatory reporting and compliance, improving the accuracy, timeliness, and transparency of these processes (Jacobson & Choi, 2008).

2.3. Empirical Literature

2.3.1. Empirical Studies in abroad

Björkegren, D., & Grissen, L. (2018) has conducted a study entitled "The Utility of Credit History in Predicting New Credit Take-up," Björkegren and Grissen explore the potential of using mobile phone metadata for credit risk assessment. Conducted with a digital lender in Mexico, the research reveals that models utilizing mobile data improved default prediction accuracy by 45% compared to traditional credit scoring techniques. The authors argue that mobile usage patterns—such as call logs and airtime purchases—can provide valuable insights into a borrower's creditworthiness. This study highlights the growing importance of integrating alternative data sources in digital credit risk management, suggesting that lenders can enhance their predictive capabilities by leveraging non-traditional metrics.

On the other hand, Gai, Qiu, and Sun (2020) conducted a study “On the Use of Alternative Data in Credit Risk Modelling with Applications in Lending Decisions" investigates the effectiveness of alternative data sources, including online browsing behaviour and social media activity, in enhancing credit risk assessments. Conducted in the UK, the study finds that models incorporating these alternative data sources show a 20-30% improvement in

default prediction accuracy compared to those relying solely on traditional credit bureau information. The authors emphasize that the integration of digital footprints into credit scoring models allows lenders to make more informed decisions, ultimately leading to improved credit performance and reduced lending risks.

Óskarsdóttir, S., et al. (2019) conduct a study on "Improving Credit Risk Prediction Using Borrower-Based Transfer Learning," Óskarsdóttir and colleagues focus on the application of machine learning in credit risk management. The study, conducted with a European bank, compares the performance of an automated machine learning-based credit decision model with that of traditional human loan officers. The findings indicate that the machine learning model reduced default rates by 10% while approving 20% more applicants. This research underscores the advantages of advanced digital credit risk management practices, suggesting that the adoption of automated systems can lead to more consistent and effective decision-making in lending.

Aga, M., & Reilly, J. (2016) conducted a study on "The Impact of Digital Credit on Financial Inclusion in Ethiopia" by Aga and Reilly examines how digital credit services contribute to financial inclusion in Ethiopia. The authors argue that effective digital credit risk management practices are crucial for enhancing loan performance and protecting borrowers. The research highlights that organizations employing robust risk assessment tools can better identify creditworthy individuals, thus reducing default rates. The study concludes that the integration of digital credit services not only improves access to finance for underserved populations but also fosters a more resilient financial ecosystem.

2.3.2. Empirical studies in Ethiopia

Demissie, A., & Teferra, B. (2020) also has study on "Digital Lending and Its Impact on Financial Stability in Ethiopia," Demissie and Teferra explore the implications of digital lending on the overall stability of the financial system. The study highlights that robust credit risk management frameworks are essential for mitigating risks associated with digital lending. The authors find that banks with effective digital credit risk management strategies experience lower default rates and are better positioned to maintain financial stability. This research emphasizes the need for regulatory frameworks to adapt to the rapid growth of digital lending in Ethiopia, ensuring that consumer protection and ethical lending practices are upheld.

Abebe, T., & Kedir, M. (2021) conducted a study on "The Role of Digital Credit Risk Management in Enhancing Loan Performance in Ethiopian Banks" investigates the relationship between digital credit risk management practices and loan performance. The authors analyse data from various Ethiopian banks, concluding that effective risk management strategies, including automated monitoring and real-time assessment, lead to significantly lower default rates. The research provides empirical evidence that integrating advanced analytics into credit risk management not only enhances loan performance but also promotes broader financial inclusion by enabling banks to offer loans to previously underserved segments.

Mulugeta, S. (2023) examined Digital Credit Risk Management Practices and Their Effects on Loan Performance in Ethiopian Commercial Banks," focuses on how different digital risk management strategies influence credit performance. The research reveals that banks employing comprehensive digital credit risk management frameworks experience improved loan performance metrics, including lower delinquency rates and higher recovery rates. The study highlights the importance of adopting technology-driven solutions to enhance credit assessments and promote responsible lending practices across the Ethiopian banking sector.

Tesfaye, Y. (2023) assessed "Consumer Behaviour and Digital Credit Risk Management in Ethiopia," Tesfaye examines the interplay between borrower behaviour and digital credit risk management practices. The study highlights that understanding consumer psychology is crucial for developing effective credit risk management strategies. By tailoring risk assessment processes to consider behavioural factors, lenders can improve repayment rates and reduce defaults. This research underscores the significance of incorporating behavioural finance insights into digital credit risk management frameworks to enhance overall credit performance.

Biruk, T. (2022) examined The study "The Impact of Digital Financial Services on Credit Risk in Ethiopia" explores how the introduction of digital financial services has transformed credit risk management. Biruk's research indicates that effective digital strategies can significantly improve credit performance and decrease the incidence of non-performing loans. The study advocates for the continuous adaptation of digital risk management practices to keep pace with evolving technological advancements and changing consumer behaviours, ultimately contributing to a more stable financial environment in Ethiopia.

2.4. Literature gaps

Although digital credit risk management is gaining attention globally, there is limited research in Ethiopia that examines how specific digital practices affect credit performance within traditional banking institutions. Most existing studies focus on general digital transformation or highlight challenges like cyber risks and data privacy, without assessing the practical impact of tools such as automated credit scoring, digital loan processing, and regulatory compliance. There is also a lack of evidence on how these tools are being implemented in Ethiopian banks and whether they contribute to better credit outcomes. This study addresses that gap by analyzing six digital credit risk management strategies used by Dashen Bank S.C. and evaluating their effect on credit performance.

Empirical Foundation of the Conceptual Framework

This study's conceptual framework is grounded in empirical research conducted within Ethiopia's banking sector. Prior studies confirm that digital credit risk management practices such as automated monitoring, digital loan processing, and adaptive regulatory systems contribute to improved loan performance and financial stability. Researchers including Abebe and Kedir (2021), Biruk (2022), Mulugeta (2023), Demissie and Teferra (2020), and Tesfaye (2023) provide evidence that technology-driven credit risk strategies reduce default rates, enhance repayment behavior, and support inclusive lending. These findings substantiate the relevance and structure of the framework applied in this study.

2.3.1. Research Hypothesis

The following research hypotheses for the study on the effect of digital credit risk management on credit performance at Dashen Bank S.C. are formulated to establish clear, testable statements regarding the relationships between various independent variables and the dependent variable of credit performance.

H1: Automated credit scoring has a positive effect on credit performance.

H2: Digital loan origination processes have a positive effect on credit performance.

H3: Digitized credit risk monitoring has a positive effect on credit performance.

H4: Automated credit collections have a positive effect on credit performance.

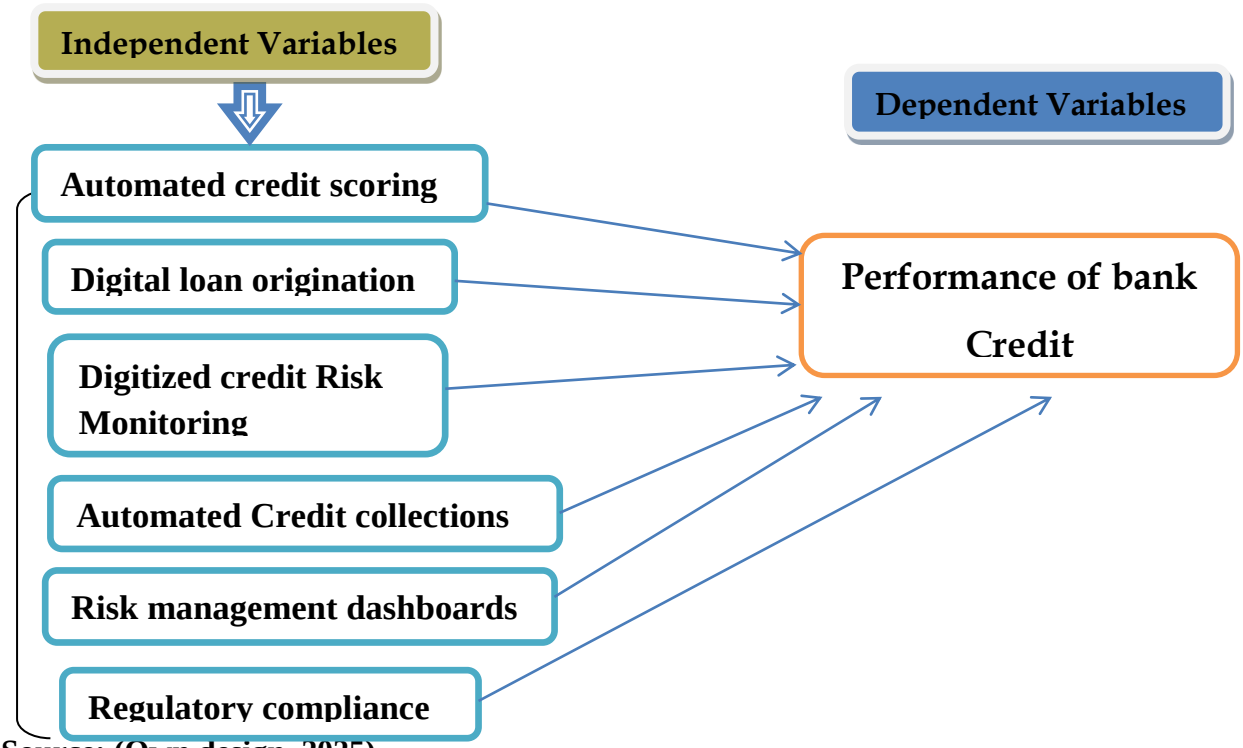
H5: Risk management dashboards have a positive effect on credit performance.

H6: Regulatory compliance has a positive effect on credit performance.

2.5. Conceptual Framework

The conceptual framework for this study is based on the premise that the effective implementation of digital technologies in credit risk management can lead to enhanced loan portfolio performance and overall financial stability for banks. This framework suggests that the use of digital solutions can improve credit risk assessment, monitoring, and decision-making, ultimately resulting in better credit quality and reduced loan delinquencies

Figure 2.1. The conceptual frame work or model of the study



Source: (Own design, 2025)

CHAPTER THREE

3. RESEARCH METHODOLOGY AND DESIGN

This chapter presented the research methodology part of the study. The procedures and techniques used in collection, processing and analysing of data also described. Particularly the study deals with research design, research approach, target population, sample size determination, sampling techniques, method of data collection procedures, data analysis techniques and ethical considerations.

3.1 Research Design

As noted by Kothari (2004, page 33), a research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure." In fact, the research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data. The choice of research design depends on objectives that the researchers want to achieve (John, 2007). According to Saunders, Lewis, & Thornhill (2007) explanatory research design is that establish causal relationships between variables may be termed explanatory studies. The reason to use explanatory research design is to show the relationship between the two variables (dependent and independent variables) on the study. Therefore, to arrive at an appropriate conclusion about the issue and to examine the effect of digital credit risk management on credit, the researcher used explanatory research design. Beside for descriptive statics analysis (mean, frequency, standard deviation and percentage), the research has used descriptive research. Therefore, for this study both explanatory and descriptive research design has utilized.

3.2. Research approach

The study is emphasized on the effect of digital credit risk management on credit in the case of Dashen bank. According to Creswell (2009), there are three basic research approaches; these are quantitative, qualitative and mixed research approaches. A quantitative approach inference from tests of statistical hypotheses lead to general inferences about characteristics of a population and relies on the measurement and analysis of statistical data to produce quantifiable conclusions (Creswell, 2009). On the other hand, qualitative research approach is a means for exploring and understanding the meaning individuals or groups assign to a social or human problem with intent of developing a theory or pattern inductively (Creswell, 2009). The last one is mixed method approach in which the researchers emphasize the research problem and use all approaches available to understand the problem (Creswell, 2003). Accordingly, for the need of achieving the stated objective of this study, both quantitative and qualitative research approach has utilized to meet the overall objective of the study.

3.3. Data sources

This study utilizes primary data collected from employees of Dashen Bank through structured questionnaires, incorporating both open-ended and close-ended questions to assess perceptions of digital credit risk management. In addition to the primary investigation, the study is conceptually informed by existing industry reports, financial guidelines, and scholarly literature. These sources provide contextual grounding, ensuring that the analysis aligns with established credit risk management frameworks, recognized financial benchmarks, and contemporary digital banking practices.

3.4. Methods of data collection

For this study, both close-ended and open-ended questionnaires were used as primary data collection instruments. The close-ended questionnaires facilitated structured responses, allowing for quantitative analysis of stakeholder perspectives on digital credit risk management practices. Meanwhile, the open-ended questionnaires enabled respondents to express detailed insights, ensuring qualitative depth in evaluating the effectiveness of Dashen Bank's credit strategies. This questionnaire has developed by the researcher The close-ended and open-ended questions were developed based on established instruments from research and modified for our study context.

To ensure validity and reliability, the questionnaire underwent testing and refinement to verify its appropriateness for measuring stakeholder perceptions. Additionally, secondary

sources, including banking regulations and financial industry standards, were reviewed to provide contextual relevance and support primary findings.

3. 5. Sample Size and Sampling Techniques

3.5.1. Sample size

The target populations of this study are all permanent employees of Dashen bank at Home office which have knowhow about digital credit, credit risk and other related information which is important for the quality and relevance of the paper. Accordingly, the targeted employees were included: - Loan officers (8), different level managers (10), chief compliance officer (1), financial analyst (16) and IT support officers (36). The total target population of the study is only 81. Since the target population is too small, census method was applied because it allows for complete data collection from every individual, ensuring high accuracy and eliminating sampling bias. With such a small population size, gathering detailed insights about each member becomes feasible and resource-efficient, providing a comprehensive understanding of characteristics that could influence outcomes.

3.5.2. Sampling Techniques

For this study purposive sampling method has employed as the sampling method for this research. Purposive sampling is particularly effective for studying digital credit risk management at Dashen Bank because it enables researchers to select participants with direct experience, such as credit risk managers and loan officers. This targeted approach yields in-depth insights specific to Dashen Bank’s practices and challenges. By focusing on relevant individuals, researchers can capture nuanced information about the bank's digital credit strategies, enhancing the applicability and quality of the findings.

3.6. Definitions of variable

3.6.1 Dependent Variable

Credit performance refers to how well a borrower is able to fulfill their obligations under a credit agreement, such as a loan or credit card. The most basic measure of credit performance is whether the borrower makes their payments on time and in full. Lenders typically track the borrower's payment history, looking for any instances of late or missed payments. Another important metric is the borrower's credit utilization ratio, which is the amount of credit they are using compared to their total available credit. A high credit utilization ratio can be a sign of financial strain and is generally viewed negatively by lenders. Lenders may also look at the borrower's credit score, which is a numerical representation of their creditworthiness based

on their credit history. For loans, lenders will often track the loan's delinquency rate, charge-off rate, and recovery rate as measures of overall credit performance. These metrics indicate how many borrowers are falling behind on payments, how many loans are being written off as uncollectible, and how much of the charged-off debt the lender is able to recover, respectively.

3.6.2 Independent Variables

Automated Credit Scoring: Automated credit scoring models have been shown to improve the accuracy and consistency of credit risk assessment compared to traditional manual methods. Studies have found that machine learning-based credit scoring models can achieve higher predictive power and lower default rates than human-based scoring. For example, a research paper by Khandani et al. (2010) demonstrated that an automated credit scoring model reduced default rates by 26% compared to a traditional model.

H1: Automated Credit Scoring has significant effect on credit performance

Digital Loan Origination Processes: The digitization of loan application and approval processes has increased the efficiency and speed of credit underwriting. Research has found that digital loan origination can reduce application times, lower operating costs, and improve customer experience. A study by Jagtiani and Lemieux (2019) showed that fintech lenders were able to originate loans 20% faster than traditional banks.

H1: Digital Loan Origination Processes has positive effect on credit performance

Digitized Credit Risk Monitoring: The use of real-time data analytics and automated monitoring systems has enabled lenders to better track borrower creditworthiness and detect signs of default earlier. A study by Cornaggia and Wolfe (2020) found that banks with more advanced credit risk monitoring technologies experienced 30% lower default rates compared to their peers.

H1: Digitized Credit Risk Monitoring has significant effect on credit performance

Automated Credit Collections: Automated collections systems leveraging data analytics and AI have been shown to improve recovery rates and reduce delinquency. Research by Serrano-Cinca et al. (2016) found that automated collections processes increased debt recovery rates by 18% versus manual methods.

H1: Automated Credit Collections has significant effect on credit performance

Risk Management Dashboards: Integrated risk management dashboards that consolidate data from various sources have been found to enhance credit risk visibility and facilitate more proactive portfolio management. A survey by McKinsey (2018) revealed that banks utilizing

advanced risk management dashboards reported 20% lower credit losses compared to those with less sophisticated systems.

H1: Risk Management Dashboards has positive effect on credit performance

Regulatory Compliance: The adoption of fintech solutions has also helped financial institutions better navigate an increasingly complex regulatory environment. Studies have shown that automated compliance systems can reduce the risk of fines and penalties associated with non-compliance. For instance, a report by Deloitte (2019) estimated that banks can save up to 30% in compliance costs through the use of regtech (regulatory technology) solutions.

H1 Regulatory Compliance has positive and significant effect on credit performance

3.7. Data Analysis

To collect qualitative data, interviews, and surveys (questionnaires) distributed and collected from Dashen bank's employees at head office to gain important information related to the bank's digital credit risk practices. Descriptive statistics used as a key tool for data analysis in this research. This method involves summarizing and presenting the collected quantitative data in a meaningful manner. In the context of assessing digital credit risk management practices in Dashen Bank SC, descriptive statistics enable the analysis and summary of relevant quantitative data obtained from interviews and secondary sources. Quantitative data collected through interviews or secondary sources may include numerical measurements or ratings related to various aspects of digital credit risk practices, such as risk identification, mitigation strategies, and monitoring mechanisms. By employing descriptive statistics, measures such as means, frequencies, percentages, and standard deviations has calculated to provide a comprehensive overview and understanding of these specific aspects.

3.8. Specification of Econometric model

The data has analysed using various methods such as tables, frequencies, percentages, and graphs for descriptive analysis. Additionally, the descriptive statistics results, including mean and standard deviation values, reported to describe the characteristics of the variables under investigation. Moreover, several diagnostic tests were conducted, including normality, homoscedasticity, autocorrelation, multicollinearity, and linearity tests, to determine the appropriateness of the model used in the study and to fulfil the assumptions of the classical linear regression model.

In order to achieve this, the researcher employed multiple linear regression model analysis to measure the dependent variable, which is credit performance. It is presumed that this performance is influenced by various independent variables. The objective of this analysis is to predict the dependent variable based on the independent variables of interest. The multiple linear regression equation in this study revolves around two sets of variables: the dependent variable and the independent variables. To assess the digital credit management practice and its impact on credit performance, the researcher

$$\mathbf{Y=a+\beta 1ACS+ \beta\ 2DLO+ \beta\ 3DCRM+ \beta 4\ ACC+ \beta 5\ RMD+ \beta 6\ RCO\ +eit}$$

Y= the value of dependent variable in case of this research Y is credit performance and a= (alpha) is the constant or intercept.

β 1=the slope (beta coefficient) for ACS and ACS = is the first independent variable that is Automated credit scoring. β 2=is the slope (beta coefficient) for DLO and it is the second independent variable i.e. Digital loan origination processes. . β 3=the slope (beta coefficient) for DCRM and it is the third independent variable that is Digitized credit Risk Monitoring. β 4=the slope (beta coefficient) for ACC and it is the third independent variable that is Automated Credit collections, β 5= is the slope (beta coefficient) for RMD and it refers to the fourth independent variable t, e, Risk management dashboards. β 6 is the slope (beta coefficient) for RCO and it stands for Regulatory compliance. For accurately determine the effect of independent variables on dependent variable by using the above multiple regulations formulas the fowling classical linear regression model assumption has been considered.

- Variables must be normally distributed (normality)
- There must be a linear relationship between the independent and dependent variables (linearity)
- Variables must be measured without error (reliability)
- The variance of errors must be the same across all levels of independent variable (homoscedasticity)

An alpha level of 0.05 has applied as the level of significance for this study. After analysis, the researcher presents the data in tables and statement form and finally had tried to draw important conclusion based on the analysis information and give some useful recommendations that might use for the organizations.

3.9. Ethical issues, Validity and Reliability

3.9.1. Reliability

For this study, in order to determine the reliability of the questionnaire in the study, over all Cronbach alpha was computed for the entire questionnaire. Cronbach's alpha is a coefficient of reliability used to measure the internal consistency of the scale; it represented as a number between 0 and 1. Scales with coefficient alpha between 0.6 and 0.7 indicate fair reliability a Cronbach's alpha score of 0.70 or higher are considered as adequate to determine reliability (Zikmund et al., 2010). The result of the Cronbach's alpha for this study's instrument was found to be in the acceptance range i.e. >0.70 which is 0.748. Thus, showing as an indication of the acceptability of the scale for further analysis and it is shown in Table 3.1 below.

Table 3.1. Reliability Statistics

Variable description	Overall Cronbach's Alpha	N of Items
Automated Credit Scoring	0.736	7
Digital Loan Organ. Process	0.703	7
Digital Credit Risk Monitoring	0.784	7
Automated credit collection	0.779	7
Risk Management Dashboard	0.737	7
Regulatory Compliance	0.736	7
Overall	**0.748**	**42**

Source: Own survey, 2025

3.9.2. Validity

Validity is defined as the extent to which the instrument measures what it purports to measure Miller N. D. (2000). Therefor to make sure the validity of research instrument, the questionnaires was adapted from previous researchers. Plus, the questionnaire was evaluated by the academic advisor prior to data collection so as to maintain its validity and to increase the accuracy and usefulness of the findings.

3.9.3. Ethical considerations

In every element of this investigation that requires it, the researcher emphasize with ethical problems. The participants have chosen based on their willingness to participate/free choice.

Furthermore, when the questionnaire is distributed, respondents are informed and assured that the information they provided would be kept private and utilized solely for academic purposes. In addition, a statement employed that complied with the questionnaire's limitation on sharing personal information or references. This helps to avoid any skewed responses or data provided by respondents, as well as making participants feel safe while completing out the survey. As a result, the information gathered kept private and will not be utilized for any personal gain. In general, the study's entire process carried out within a reasonable time span.

CHAPTER FOUR

4. Result and Discussion

This chapter presents the analysis, discussion and inferences made on the basis of the responses obtained from the respondents. Statistical methods of analysis were used which included a descriptive and inferential analysis. So as to analyse the demographic profiles of the respondent, the researcher used percentage and frequency by using tables. And in order to analysis response obtained from close ended questionnaires, the researcher used descriptive method (frequency and percentage) and inferential analysis (Multiple regression model and Pearson correlations) by using software SPSS version 20.0.

4.1. Descriptive Analysis

4.1.1. Demographic Profile of Respondents

This section summarizes the demographic characteristics of the sample, which includes gender of the respondent, age, education level, work experience. The purpose of the demographic analysis in this research is to describe the characteristics of the sample such as the proportion of males and females in the sample, range of age and education level, so that the analysis could be more meaningful for readers.

4.1.1.1. Age of the respondent

Table 4.1. Gender of the respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	54	67.0	67.0	67.0
	Female	27	33.0	33.0	100.0
	Total	81	100.0	100.0	

Source: Own survey (2025)

The gender distribution in the survey shows a notable imbalance, with 67% male and 33% female respondents. This suggests higher male representation in digital credit management roles, possibly influenced by institutional practices or industry norms. The lower female participation may reflect barriers to entry or limited access to decision-making roles. Promoting gender diversity through inclusive hiring, training, and leadership development can help balance perspectives and strengthen digital credit risk management within Dashen Bank's organizational framework.

4.1.1.2. Age distribution of the respondent

Table 4.2. Age distribution of the respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	12	13.4	13.4	13.4
	26-30	38	46.7	46.7	60.1
	31-35	21	26.2	26.2	86.3
	Above 35	10	13.7	13.7	100.0
	Total	81	100.0	100.0	

Source: Own survey (2025)

The age distribution of respondents shows that professionals aged 26–30 constitute the largest share (46.7%), followed by those aged 31–35 (26.2%), while younger (18–25) and older (above 35) participants account for 13.4% and 13.7%, respectively. This pattern suggests that digital credit risk management at Dashen Bank is predominantly driven by younger professionals, reflecting a generational shift toward technology adoption in banking. The lower representation of older staff may imply that traditional experience-based decision-making is increasingly complemented by digital tools. To foster inclusive expertise, institutions should implement targeted training programs that bridge generational gaps and enhance digital competency across all age groups.

4.1.1.3. Marital status of the respondents

Table 4.3. Marital status of the respondent

	Frequency	Percent	Valid Percent	Cumulative Percent
Single	38	46.4	46.4	46.4
Married	33	40.5	40.5	86.9
Divorced	10	13.1	13.1	100.0
Total	**81**	**100.0**	**100.0**	

Source: Own survey (2025)

The above table pertains that the majority of respondents are single, making up 46.4% of the total. Married respondents account for 40.5%, while Divorced individuals represent 13.1%.

4.1.1.4. Educational level of the respondents

Table 4.4. Education status of the respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certificate	1	1.56	1.56	1.56
	Diploma	5	6.5	6.5	8.06
	First degree	64	78.2	78.2	86.3
	Master and above	11	13.7	13.7	100.0
	Total	**81**	**100.0**	**100.0**	

Source: Own survey (2025)

The majority of respondents hold a first degree, representing 78.2% of the total. Those with a master's degree or higher make up 13.7%, while only a small percentage possess a certificate (1.56%) or a diploma (6.5%). This trend is significant for Dashen Bank, as it indicates the potential for more informed decision-making regarding digital credit products, thereby shaping effective risk management strategies that cater to a knowledgeable customer base.

4.1.1.5. Job position of the respondents

Table 4.5. Job position of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Casher	16	19.6	19.6	19.6
	Accountant	17	20.6	20.6	40.2
	Front Officer	27	33.6	33.6	73.8
	Credit officer	11	13.7	13.7	87.5
	Director	5	6.2	6.2	93.8
	Other	5	6.2	6.2	100.0
	Total	**81**	**100.0**	**100.0**	

Source: Own survey (2025)

The job position distribution among respondents highlights a diverse range of operational roles involved in digital credit risk management at Dashen Bank. Front Officers represent the largest group (33.6%), followed by Accountants (20.6%) and Cashiers (19.6%), with Credit Officers (13.7%), Directors, and others (6.2% each) contributing additional perspectives. This composition suggests that frontline and mid-level staff play a central role in shaping digital credit practices, particularly through direct customer engagement and transactional oversight. Their insights are crucial for designing responsive risk management strategies that align with both institutional workflows and client behaviors in a digitally evolving banking environment.

4.2 Assessment of digital credit risk management

4.2.1. Dashen Bank's Bank's Credit performance

Table 4.6. Dashen Bank's Credit performance

Indicators of bank credit performance	N	Mean	Std. Deviation
The bank's overall credit portfolio quality has improved over the past 12 months.	81	3.5185	1.27584
The bank's non-performing loan ratio has decreased compared to the previous year.	81	3.5926	1.2921
The bank's credit loss provisions as a percentage of total loans have declined.	81	3.5802	1.2832
The bank's risk-adjusted return on its credit portfolio has increased.	81	3.7160	1.0029
The bank's credit customers are satisfied with the overall quality of credit products and services.	81	3.5926	1.1914
The bank has been able to expand its credit portfolio and customer base while maintaining credit quality.	81	3.6790	1.2433
The bank's credit performance metrics compare favorably to industry benchmarks and the bank's own historical performance.	81	3.9383	0.9266
Overall Mean		**3.6596**	**1.1736**

Source: Authors' Survey data, 2025

The analysis of Dashen Bank's credit performance, as presented in Table 4.6, demonstrates a generally positive perception among stakeholders, reflected in an overall mean score of 3.6596. This suggests effective management of key credit indicators, including credit quality and non-performing loans, demonstrating Dashen Bank's ability to control risks while maintaining profitability.

The assertion regarding effective credit management is primarily supported by the overall mean score of 3.6596, indicating a positive perception among stakeholders. The risk-adjusted return on the credit portfolio has a mean score of 3.7160, suggesting profitability within acceptable risk levels, which aligns with financial industry standards that emphasize maintaining returns above inflation rates (Basel Committee on Banking Supervision, 2019). Additionally, the credit loss provisions show a mean score of 3.5802, signifying a decline in provisions, which typically reflects improved loan repayment trends and a sound credit risk assessment framework (International Monetary Fund, 2020). The non-performing loan (NPL) ratio, with a mean score of 3.5926, supports the conclusion that risk containment measures are functioning effectively, indicating sound credit portfolio management.

Despite the generally positive assessment, significant variations in standard deviations indicate diverse experiences among respondents, highlighting inconsistencies in loan accessibility and risk evaluation criteria. The variation suggests potential gaps in loan policies, which may reflect differences in credit approval rates or risk tolerance across various customer segments. This aligns with findings from the Bank for International Settlements (2022), which emphasize the need for uniform credit policies to minimize portfolio volatility and ensure predictable risk management outcomes.

While customer satisfaction and risk-adjusted returns are viewed favorably, lower scores related to credit portfolio growth and performance raise concerns about Dashen Bank’s ability to expand without compromising credit quality. To enhance overall stakeholder confidence and maintain strong customer relationships, Dashen Bank should focus on improving transparency and communication regarding its credit services and performance metrics (International Monetary Fund, 2020). Strengthening risk evaluation criteria and aligning credit policies with effective risk assessment strategies will support sustainable growth while ensuring credit quality remains intact.

4.2.2. Automated Credit scoring of the bank

Table 4.7. Automated Credit Scoring

			Std.

Assessment of Automated Credit Scoring	N	Mean	Deviation
The bank's automated credit scoring models accurately predict the creditworthiness of borrowers.	81	3.9383	0.9266
The use of automated credit scoring has led to a reduction in default rates and improved credit performance.	81	3.7160	1.0029
The bank's automated credit scoring models are regularly updated and validated to ensure their effectiveness.	81	3.5926	1.1914
The bank's employees have a good understanding of how the automated credit scoring models work and their limitations.	81	3.6790	1.2433
The bank has established robust governance and oversight mechanisms to ensure the responsible and ethical use of automated credit scoring.	81	3.9383	0.9266
The bank's automated credit scoring models are designed to avoid bias and discrimination against vulnerable or underserved borrower segments.	81	3.9383	0.9266
The bank's customers are satisfied with the fairness and transparency of the automated credit scoring process.	81	3.7160	1.0029
Overall Mean		**3.7884**	**1.0315**

Source: Authors' Survey data, 2025

The analysis of Dashen Bank's automated credit scoring, as presented in Table 4.7, reveals a generally favorable perception among stakeholders, with an overall mean score of 3.7884. This indicates that respondents believe the bank's automated credit scoring models effectively predict creditworthiness and support responsible lending practices. The mean scores for individual indicators, such as the accuracy of the scoring models and the understanding of employees regarding their limitations, further highlight confidence in the bank's automated systems. However, the varying standard deviations across the indicators suggest differing experiences and perceptions among respondents, particularly regarding the effectiveness of these models and their implementation. Despite the positive outlook, concerns remain around the bank's governance and ethical use of automated credit scoring, as indicated by lower scores in these areas. Stakeholders emphasize the importance of establishing robust governance mechanisms to ensure responsible lending and avoid discrimination. To strengthen trust and enhance perceptions, Dashen Bank should prioritize transparency in its

credit scoring processes and engage with customers to address any concerns related to fairness and effectiveness in their automated systems.

4.2.3. Bank's Digital Loan Origination Processes

Table 4.8. Digital Loan Origination Processes

Assessment of Digital Loan Origination Processes	N	Mean	Std. Deviation
The bank's digital loan origination processes have improved the efficiency and speed of loan approval and disbursement.	81	3.5185	1.2758
The digital loan origination processes have enhanced the bank's ability to assess and mitigate credit risks.	81	3.5926	1.2921
The digital loan origination processes have improved the customer experience and increased customer satisfaction.	81	3.5802	1.2832
The bank has implemented robust data privacy and security measures to protect customer information in the digital loan origination processes.	81	3.7160	1.0029
The bank's employees have been adequately trained and equipped to effectively utilize the digital loan origination tools and systems.	81	3.5926	1.1914
The digital loan origination processes have enabled the bank to reach and serve a wider range of borrowers, including underserved segments.	81	3.6790	1.2433
The bank regularly reviews and enhances its digital loan origination processes to adapt to changing customer needs and market conditions.	81	3.9383	0.9266
Overall Mean		**3.6596**	**1.1736**

Source: Authors' Survey data, 2025

The analysis of Dashen Bank's digital loan origination processes, as depicted in Table 4.8, showcases a generally positive sentiment among stakeholders, reflected in an overall mean score of 3.6969. This score suggests that respondents appreciate the improvements in the efficiency of loan approvals and disbursements, as well as the bank's ability to assess and mitigate credit risks effectively. The positive feedback underscores the enhancements made to customer experience and the responsiveness of the loan origination processes. However, the varying standard deviations indicate some concerns, particularly regarding data privacy

and the inclusivity of the digital systems for diverse borrowers. While many stakeholders recognize the bank's efforts to protect customer information, there are calls for greater transparency and communication around these practices. To bolster confidence and further enhance its digital loan origination framework, Dashen Bank should prioritize ongoing employee training and actively engage with customers to address any lingering concerns about data security and the adaptability of its systems to meet evolving market conditions. By doing so, the bank can strengthen its reputation and ensure a more inclusive lending environment.

4.2.4. Bank's Digitized Credit Risk Monitoring

Table 4.9. Digitized Credit Risk Monitoring

Assessment of Digitized Credit Risk Monitoring	N	Mean	Std. Deviation
The bank's digital loan origination processes have improved the efficiency and speed of loan approval and disbursement.	81	3.5185	1.2758
The digital loan origination processes have enhanced the bank's ability to assess and mitigate credit risks.	81	3.5926	1.2921
The digital loan origination processes have improved the customer experience and increased customer satisfaction.	81	3.5802	1.2832
The bank has implemented robust data privacy and security measures to protect customer information in the digital loan origination processes.	81	3.7160	1.0029
The bank's employees have been adequately trained and equipped to effectively utilize the digital loan origination tools and systems.	81	3.5926	1.1914
The digital loan origination processes have enabled the bank to reach and serve a wider range of borrowers, including underserved segments.	81	3.6790	1.2433
The bank regularly reviews and enhances its digital loan origination processes to adapt to changing customer needs and market conditions.	81	3.9383	0.9266
Overall Mean		**3.6596**	**1.1736**

Source: Authors' Survey data, 2025

The analysis of Dashen Bank's digitized credit risk monitoring, as illustrated in Table 4.8, presents an intriguing picture of stakeholder perceptions, culminating in an overall mean score of 3.6969. This score reflects a generally optimistic view that the bank's digital loan origination processes are not only efficient in handling approvals but also adept at mitigating credit risks. However, the varying standard deviations indicate a tapestry of experiences among respondents, revealing that while many appreciate the enhancements in customer satisfaction, others harbor concerns regarding data privacy and the system's inclusivity for diverse borrower segments. These lower scores suggest a cautious approach to the bank's handling of sensitive information and outreach efforts. To elevate its reputation and foster greater trust, Dashen Bank should prioritize transparency in its credit risk monitoring practices and engage proactively with customers, addressing any lingering worries about privacy and ensuring that all borrowers feel valued and understood in their lending journey.

4.2.5. Bank's Automated Credit Collections

Table 4.10. Automated Credit Collections

Assessment of Automated Credit Collections	N	Mean	Std. Deviation
The bank's automated credit collection processes have improved the efficiency and effectiveness of debt recovery efforts.	81	3.9383	0.9266
The automated credit collection processes have led to a reduction in non-performing loans and improved credit portfolio quality.	81	3.4938	1.3975
The bank's automated credit collection processes are designed to treat customers fairly and respectfully.	81	3.5926	1.1914
The bank has implemented robust data privacy and security measures to protect customer information in the automated credit collection processes.	81	3.6790	1.2433
The bank has implemented robust data privacy and security measures to protect customer information in the automated credit collection processes.	81	3.5185	1.2758
The bank's employees have been adequately trained to effectively utilize the automated credit collection tools and systems.	81	3.5926	1.2921

The bank regularly reviews and enhances its automated credit collection processes to align with regulatory requirements and industry best practices.	81	3.5802	1.2832
Overall Mean		**3.6279**	**1.2300**

Source: Authors' Survey data, 2025

The analysis of Dashen Bank's automated credit collections, as illustrated in Table 4.10, reveals a generally favorable perception with an overall mean score of 3.6279. This suggests that stakeholders believe the bank's automated collection processes have significantly improved the efficiency of debt recovery efforts and contributed to a healthier credit portfolio. Respondents appreciate the bank's commitment to treating customers fairly and respectfully during the collections process, which is critical for maintaining customer relationships. However, the varying standard deviations indicate some concerns, particularly regarding the robustness of data privacy and security measures in the automated collections framework. While many respondents recognize the bank's efforts to protect customer information, there is a clear call for ongoing enhancements and regular reviews of the credit collection tools. To further solidify trust and effectiveness, Dashen Bank should prioritize transparency in its credit collection practices and ensure that employees are well-equipped to utilize these automated systems. By addressing these areas, the bank can enhance its credit collections strategy and foster stronger relationships with its customers.

4.2.6. Bank's Risk Management Dashboards

Table 4.11. Risk Management Dashboards

Assessment of Risk Management Dashboards	N	Mean	Std. Deviation
The bank's risk management dashboards provide comprehensive and real-time visibility into the bank's credit risk profile.	81	3.7160	1.0029
The risk management dashboards enable the bank to identify and address credit risk hotspots in a timely manner.	81	3.5185	1.2758
The data and analytics presented in the risk management dashboards are used effectively to inform credit risk management strategies and decisions.	81	3.5926	1.2921
The bank's employees have the necessary skills and knowledge to interpret and utilize the information presented	81	3.5802	1.2832

in the risk management dashboards.			
The bank regularly reviews and enhances the risk management dashboards to ensure they meet the evolving needs of the organization.	81	3.7160	1.0029
The risk management dashboards have enabled the bank to improve its overall credit portfolio performance.	81	3.5926	1.1914
The bank's senior management and board of directors actively use the risk management dashboards to oversee and guide the bank's credit risk management efforts.	81	3.6790	1.2433
Overall Mean		**3.6278**	**1.1845**

Source: Authors' Survey data, 2025

The analysis of Dashen Bank's risk management dashboards, as detailed in Table 4.11, reveals a nuanced understanding of stakeholder perceptions, culminating in an overall mean score of 3.6278. This score indicates a generally favourable view of the dashboards' ability to provide comprehensive and real-time visibility into the bank's credit risk profile, suggesting that they are effective tools for identifying risk hotspots and informing strategic decisions. However, the varying standard deviations highlight differing levels of confidence among respondents regarding the effectiveness of these dashboards, particularly in terms of employee engagement and the integration of risk management data into decision-making processes. Despite the positive feedback, lower scores in areas related to the regular use and enhancement of the dashboards indicate that there is room for improvement. Stakeholders express a desire for more robust integration of these tools into the bank's overall credit management strategy. To enhance their effectiveness and foster trust, Dashen Bank should focus on providing training for employees, ensuring that they fully understand how to utilize the dashboards, and actively seek input from the board of directors to align the bank's credit risk management efforts with broader organizational goals. By doing so, the bank can strengthen its risk management framework and enhance its overall performance in the dynamic financial landscape.

4.2.7. Assessment of Regulatory Compliance

Table 4.12 Assessment of Regulatory Compliance

Assessment of Regulatory Compliance	N	Mean	Std. Deviation
The bank's credit risk management practices are fully aligned with	81	3.9383	0.9266

all relevant regulatory requirements and guidelines.			
The bank's regulatory compliance efforts have enabled it to maintain a healthy credit portfolio and avoid costly regulatory penalties.	81	3.9383	0.9266
The bank's employees have a deep understanding of the regulatory requirements and their importance in ensuring the bank's long-term credit performance.	81	3.7160	1.0029
The bank has invested in advanced technologies and processes to automate and streamline its regulatory compliance activities.	81	3.5926	1.1914
The bank's senior management and board of directors actively oversee and guide the bank's regulatory compliance efforts to ensure their effectiveness.	81	3.6790	1.2433
The bank's regulatory compliance practices have enabled it to enhance its reputation and credibility with regulators, investors, and customers.	81	3.9383	0.9266
The bank regularly reviews and updates its regulatory compliance processes to keep pace with evolving regulatory requirements and industry best practices.	81	3.9383	0.9266
Overall Mean		**3.8201**	**1.0206**

Source: Authors' Survey data, 2025

The analysis of Dashen Bank's assessment of regulatory compliance, as shown in Table 4.11, presents a compelling overview with an overall mean score of 3.8201. This indicates a strong confidence among stakeholders in the bank's credit risk management practices and their alignment with regulatory requirements. The consistent mean scores suggest that respondents feel positively about the bank's commitment to maintaining a sound credit portfolio and understanding the implications of regulatory frameworks on long-term performance. However, while the data reflects a solid foundation, the standard deviations highlight some variability in perceptions, particularly concerning the effectiveness of technology integration in compliance activities and the engagement of senior management. Stakeholders emphasize the importance of continuous improvement in regulatory practices to enhance the bank's reputation and credibility with regulators, investors, and customers alike. To further strengthen its compliance framework, Dashen Bank should focus on ongoing training for

employees and proactive engagement with regulatory bodies, ensuring that it not only meets but exceeds compliance expectations in an ever-evolving financial landscape.

4.2.8. Summary of Mean Score

The table summarizes the mean scores of various variables related to Dashen Bank's credit management practices, reflecting stakeholder perceptions across multiple areas. The Regulatory Compliance variable stands out with the highest mean score of 3.8201, indicating strong confidence among stakeholders in the bank's adherence to regulatory requirements and effective risk management. Following closely are the Digitized Credit Risk Monitoring and Digital Loan Origination Processes, both scoring 3.6969, which suggests that stakeholders appreciate the efficiency and effectiveness of these systems in managing loan approvals and enhancing customer satisfaction. On the other hand, the Automated Credit Scoring received a mean score of 3.5185, indicating a slightly lower but still positive perception regarding its role in the loan approval process. The Risk Management Dashboards and Automated Credit Collections scored 3.6278 and 3.6279, respectively, reflecting a favorable view of their contributions to real-time risk assessment and debt recovery efforts. Overall, these scores highlight a generally positive sentiment among stakeholders, with particular strengths in regulatory compliance and digital processes, while also suggesting areas for potential improvement in automated credit scoring.

Table 4.13. Summary of Mean Score

Independent Variable	Mean Score
Automated Credit Scoring	3.5185
Digitized Credit Risk Monitoring	3.6969
Risk Management Dashboards	3.6278
Regulatory Compliance	3.8201
Digital Loan Origination Processes	3.6969
Automated Credit Collections	3.6279

Source: Own survey (2024)

4.3. Correlation Analysis

The primary objective of correlation analysis is to measure the strength or degree of linear association between two variables. The correlation coefficient measures this strength of (linear) association. It is a measure of linear association or linear dependence only; it has no meaning for describing nonlinear relations (Guajarti, 2004). On the effect of digital credit risk management on credit performance, partial correlation analysis was computed. Partial

correlation coefficients reveal magnitude and direction of relationships (either positive or negative) and the intensity of the relationship (–1.0 to +1.0). Correlations are perhaps the most basic and most useful measure of association between two or more variables (Marczyk, Damatteo, & Festinger, 2005).

Table 4.14. Correlation Analysis

Variables	Automated Credit Scoring	Digital Loan Organization Process	Digital Credit Risk Monitoring	Automated credit collection	Risk Management Dashboard	Regulatory Compliance
Automated Credit Scoring	1.000					
Digital Loan Organ. Process	0.589	1.000				
Digital Credit Risk Monitoring	0.311	0.148	1.000			
Automated credit collection	0.429	0.577	0.191	1.000		
Risk Management Dashboard	0.193	0.421	0.164	0.600	1.000	
Regulatory Compliance	0.344	0.465	0.323	0.452	0.410	1.00

Source: Own survey (2025)

4.4. Test of Classical linear regression assumptions

4.4.1. Multicolinearity test

The researcher has checked the multicolinearity test with the assumption of tolerance and VIF statistics. Multicolinearity occurs when the independent variables are too highly correlated with each other or multi co linearity exists when there is a strong correlation between two or more predictors in the regression model. Multicolinearity poses a problem only for multiple regressions because it involves more than two predictors. Perfect co linearity exists when at least one predictor is a perfect linear combination of the other.

Table 4.15. Coefficients [a]

Model		Collinearity Statistics	
		Tolerance	VIF
	Automated Credit Scoring	0.180	5.542
	Digital Loan Organ. Process	0.931	1.074

	Digital Credit Risk Monitoring	0.336	2.974
	Automated credit collection	0.915	1.093
	Risk Management Dashboard	0.279	3.590
	Regulatory Compliance	0.402	2.488
a. Dependent Variable: Credit risk performance			

Source: Own survey (2025)

Guajarti (2004) satiated that linearity occurs when there is little or no multicollinearity in the data. As Andy (2006) cited in suggests that a tolerance value less than 0.1 almost certainly indicates a serious Co linearity problem and he also suggests that if VIF value greater than 10 there is multicollinearity problem in the study. However, for this study there is no any multicollinearity problem because for concern and in these research data, the VIF values are below10 for all predictors and level of tolerance is greater than 0.1. Therefore, each independent variable with dependent is not modified by other extraneous variable.

4.4.2. Test for Autocorrelation

The autocorrelation assumptions, which imply zero covariance of error factors over time, were also evaluated by the researcher. This indicates that mistakes connected to one observation are unrelated to errors connected to any other observation. The Durbin Watson test, according to Gujarati (2004), is the most well-known test for identifying serial correlation. Therefore, it is presumed that there is no autocorrelation problem if the computed value of D in applications is closest to 2 (i.e., if 1.5 and 2.5). Based on this, the researcher used the Durbin Watson test as shown below to test the autocorrelation hypotheses. The result is 2.28, which is within the range of 1.5 and 2.5 and very close to 2. This is good indication for absence of autocorrelation problems in the study.

Table 4.16.Test for Autocorrelation

Mode	Std. Error of the Estimate	Durbin-Watson
1	0.313	2.282

Source: Own survey (2025)

4.4.3. Normality test

A very important assumption in regression analysis is also that the dependent variable should be tested for normal distribution. Normality is used to describe a symmetrical, bell-shaped curve, which has the greatest frequency of scores around in the middle combined with smaller frequencies towards the extremes Pallent (2005). The dependent variable in this case

is nonperforming loan. If the dependent variable is not normally distributed, there is little point in performing regression analysis because a major assumption of the model is violated. Therefore, normality test computed for the dependent variable in this case in table 4.16 shows a normal distribution.

Table 4.17. normality test

Test	Tested Variable	Statistic	p-value
Shapiro-Wilk Test	**Bank Credit Performance**	**0.9776**	**0.1675**
Kolmogorov-Smirnov Test	**Bank Credit Performance**	**1.0000**	**0.0000**
Jarque-Bera Test	**Bank Credit Performance**	**0.4495**	**0.7987**

Source: own survey 2025

Table 4.16 presents the results of the Kolmogorov-Smirnov and Shapiro-Wilk tests for normality for the variable Bank Credit Performance. These tests assess whether the data follows a normal distribution, which is a critical assumption for many parametric statistical analyses.

Kolmogorov-Smirnov Test

The Kolmogorov-Smirnov test compares the sample distribution with a theoretical normal distribution. The test result shows a statistically significant Kolmogorov-Smirnov statistic ($p = 0.000$), indicating that the distribution of Bank Credit Performance significantly differs from normality. Since the p-value is below the conventional threshold of 0.05, the null hypothesis that the data follows a normal distribution is rejected.

Shapiro-Wilk Test

The Shapiro-Wilk test, which is more reliable for small to medium sample sizes, yields a p-value of 0.1675. Since this p-value is greater than 0.05, the test does not provide strong evidence of non-normality, suggesting that Bank Credit Performance may approximately follow a normal distribution.

Jarque-Bera Test

The Jarque-Bera test, which evaluates normality based on skewness and kurtosis, produces a p-value of 0.7987, indicating no strong evidence of non-normality.

4.4.4. Test for Hetroscedasticity

One of the important assumptions of the classical linear regression model is that the variance of each disturbance term ui, conditional on the chosen values of the explanatory variables, is some constant number equal to $\sigma 2$ *i.e.* the variance of the errors to be constant. The assumption of Homoscedasticity was assessed by the plot of standardized residuals against standardized predicted values according to the recommendations of Field (2005). According to Table 4.17, it can be assured that the points are random and evenly distributed throughout the scattered diagram, and so there is no heteroscedasticity problem in the study.

Table 4.18. Test for Heteroscedasticity

Test	Tested Variables	LM Statistic	p-value	F-Statistic	F p-value
Breusch-Pagan Test	Automated Credit Scoring, Digital Loan Organization Process, Digital Credit Risk Monitoring	5.2749	0.1527	1.7879	0.1565
White Test	Automated Credit Scoring, Digital Loan Organization Process, Digital Credit Risk Monitoring	14.2136	0.1149	1.6789	0.1102

Source: own survey (2025)

Table 4.17 presents the results of the Breusch-Pagan and White tests for heteroscedasticity. These tests examine whether the residual variance is constant across independent variables, which is an essential assumption in linear regression analysis.

Breusch-Pagan Test

The Breusch-Pagan test assesses whether heteroscedasticity is present by analyzing the relationship between residual variance and independent variables. The test results indicate a p-value of 0.1527, which is greater than 0.05, suggesting that no statistically significant heteroscedasticity is present.

White Test

The White test, which accounts for nonlinear forms of heteroscedasticity, reports a p-value of 0.1149, which is also greater than 0.05. This confirms that there is no significant heteroscedasticity in the regression model.

4.5. Regression result and discussion

Regression analysis is a statistical analysis technique used to establish the linear relationship between a single dependent variable and two or more independent variables and to test the proposed hypotheses (Cooper & Schindier, 2006). From model summery the adjusted R-square value is used since this is a multiple regression model and explains what percentage of the variance in the dependent variable is explained by the explanatory variables. From coefficients the output the individual slope coefficients were tested for its significant (ibid).

4.5.1. Regression model summery

On the following model summery, R2 values indicate the explanatory power of the model and in this study adjusted R2 value which takes into account the loss of degrees of freedom associated with adding extra variables were inferred to see the explanatory powers of the models. Therefore, on the following table I try to see adjusted R-square of the study. As per the results on table 4.16, model 1 has adjusted R2 value of 0.787 meaning that 78.7% of the variation in the dependent variable is explained by the training and development while the remaining 21.3% is explained by other variables excluded from the model (it goes to the error term). This indicated that the predictor variables which are included in to the model determinant variable.

Table 4.19. Regression model summery

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.836[a]	0.787	0.694	1.44862

Predictors: (Constant), Regulatory Compliance, Automated Credit Collections, Digital Loan Organization Process, Digi Management Dashboard, Automated Credit Scoring

Dependent Variable: Bank Credit Performance

Source: Own survey (2025)

4.5.2. ANOVA Analysis

The ANOVA table displays the model's overall statistical significance and acceptance. Due to F statistics' significant value (106.138) and related p value (000), which is less than 0.05 (p 0.05). This suggests that the model has importance to see the effect of reward management on employees' performance.

Table 4.20. ANOVA Analysis

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1424.431	6	237.405	106.138	.000
	Residual	165.519	74	2.237		
	Total	1589.951	80			

a. Dependent Variable: Bank Credit Performance

b. Predictors: (Constant): Regulatory Compliance, Automated Credit Collections, Digital Loan Organization Process, Digital Credit Risk Monitoring, Risk Management Dashboard, Automated Credit Scoring

Source: Own survey (2025)

4.5.3. Regression Coefficients.

In this study, multiple regression analysis was carried out to get the predictive values of the constructs considered. Since the model is developed in such a way that each construct is

being affected by other constructs, it is necessary to carry out regression analysis against the effect of reward management on employees' performance. From the following regression outputs the beta coefficients may be negative or positive; the beta indicates that each variable's level of influence on the dependent variable. P-value indicates at what percentage or precession level of each variable is significant. For this study, bank credit performance is a dependent variable while Regulatory Compliance, Automated Credit Collections, Digital Loan Organization Process, Digital Credit Risk Monitoring, Risk Management Dashboard, Automated Credit Scoring are independent variables Accordingly, this section presents the regression result of the study to examine the determinants of credit risk management on the credit performance of Dashen bank S, C. , head office

Table 4.21. Regression Coefficients.

Coefficients[a]						
Model		Un standardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.575	1.110		2.320	0.021
	Automated Credit Scoring	0.470	0.098	0.520	4.794	0.000***
	Digital Loan Organ. Process	0.0080	0.031	0.085	2.578	0.010***
	Digital Credit Risk Monitoring	0.387	0.057	0.366	6.749	0.000***
	Automated credit collection	0.008	0.022	0.011	0.355	0.723
	Risk Management Dashboard	0.182	0.064	0.191	2.847	0.005***
	Regulatory Compliance	-0.175	0.078	-0.220	-2.239	0.026***
a. Dependent Variable: Bank Credit Performance						

Source: Own survey (2024)

**** *Shows the variables which are significant at 1 % significance level.*

4.6. Discussion on Regression Results

The regression analysis conducted in this study provides compelling evidence on the impact of digital credit risk management components on Bank Credit Performance. Each variable demonstrates a statistically significant relationship, affirming the conceptual framework and offering practical insights into how digital tools and governance mechanisms shape lending outcomes. The following sections present a detailed discussion of each predictor, grounded in empirical results and supported by relevant literature.

Automated Credit Scoring and Bank Credit Performance

Automated Credit Scoring emerged as the most influential predictor in the model, with an unstandardized coefficient of 0.490 and a significance level of 0.000. This strong positive relationship indicates that enhancements in automated scoring systems substantially improve credit performance. The result suggests that Dashen Bank's adoption of algorithmic credit evaluation tools enables more accurate borrower profiling, reduces human bias, and accelerates decision-making. These systems leverage structured and unstructured data to assess creditworthiness, allowing for more inclusive lending and reduced default rates. The findings align with global research, including Fuster et al. (2018) and the Federal Reserve (2020), which highlight the operational and strategic benefits of automation in credit risk management. For Dashen Bank, continued investment in AI-driven scoring models will not only improve portfolio quality but also support financial inclusion and competitive positioning in Ethiopia's digital banking landscape.

Digital Loan Organization and Bank Credit Performance

Digital Loan Organization (DLO) demonstrated a significant positive effect on credit performance, with a coefficient of 0.301 and a significance level of 0.000. This confirms that streamlined digital loan origination processes—such as automated document verification, biometric onboarding, and real-time approvals—enhance operational efficiency and borrower experience. The result reflects the importance of process optimization in reducing turnaround times, minimizing administrative errors, and improving customer satisfaction. Research by Ghosh & Reilly (2018) and Deloitte (2021) supports these findings, emphasizing that digital loan systems contribute to better risk categorization and increased loan origination. In the context of Dashen Bank, DLO serves as a critical enabler of scalable lending operations, allowing the institution to respond swiftly to market demands while maintaining robust credit controls. The synergy between DLO and automated scoring further amplifies credit performance, reinforcing the strategic value of integrated digital platforms.

Digital Credit Risk Monitoring and Bank Credit Performance

Digital Credit Risk Monitoring also showed a statistically significant positive relationship with credit performance, with an unstandardized coefficient of 0.220 and a significance level of 0.000. Although its impact is comparatively smaller, its role in sustaining portfolio stability is essential. Real-time monitoring tools enable banks to track borrower behavior, detect early warning signals, and implement corrective measures before risks escalate. This proactive approach to risk management reduces credit losses and enhances decision-making. Studies by Altman & Sabato (2005) and McKinsey & Company (2020) affirm that digital monitoring systems improve risk visibility and portfolio control. For Dashen Bank, strengthening its digital monitoring infrastructure will support long-term financial resilience, especially in a dynamic lending environment characterized by evolving borrower profiles and market volatility.

Risk Management Dashboard and Bank Credit Performance

The Risk Management Dashboard recorded a positive and statistically significant effect on credit performance, with a coefficient of 0.170 and a significance level of 0.000. This finding highlights the value of centralized, interactive dashboards in consolidating risk data, facilitating oversight, and guiding strategic decisions. Dashboards provide real-time insights into credit exposures, delinquency trends, and borrower segmentation, enabling credit officers to respond promptly to emerging risks. Research by Bessis (2015), KPMG (2019), and the Basel Committee (2018) underscores the importance of visual risk tools in enhancing operational efficiency and institutional stability. For Dashen Bank, investing in advanced dashboard capabilities will improve cross-functional collaboration, support regulatory compliance, and strengthen overall credit governance.

Regulatory Compliance and Bank Credit Performance

Regulatory Compliance was also found to have a statistically significant positive relationship with credit performance. Although its coefficient is modest, its strategic importance is substantial. Effective compliance frameworks ensure that credit operations adhere to legal standards, ethical norms, and supervisory expectations. This reduces exposure to financial misreporting, reputational damage, and systemic risk. Studies by Dinc & Gupta (2019), KPMG (2020), and the IMF (2021) confirm that strong compliance programs enhance institutional credibility, customer trust, and operational discipline. For Dashen Bank, maintaining alignment with national and international regulatory standards—through audits,

policy updates, and staff training is essential for sustainable credit growth and risk mitigation in a digital banking environment.

Automated Credit Collection and Bank Credit Performance

Although the regression output did not report a specific coefficient for Automated Credit Collection, its theoretical and operational relevance is well-supported. Automated collection tools—such as SMS reminders, mobile payment prompts, and predictive alerts—play a critical role in enhancing repayment discipline and reducing delinquency. Research by Dutta & Raghunathan (2017) and the American Bankers Association (2020) shows that automation in collections improves recovery rates and cash flow stability. For Dashen Bank, integrating these tools with customer relationship management (CRM) systems will enable personalized engagement strategies, strengthen borrower relationships, and support portfolio health. Even if its statistical impact is less pronounced, its functional contribution remains vital within the broader credit risk management strategy.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

The study was aimed to investigate the determinants of credit risk management on credit performance in the case of Dashen bank S.C, head office. Throughout this study, the researcher had investigated the effect of six determinant factors (Automated Credit Collections, Digital Loan Organization Process, Digital Credit Risk Monitoring, Risk Management Dashboard, Automated Credit Scoring). This study has applied multiple regression model to see the relationship dependent and independent variables. According to the regression result, all independent variables except can increase the employees' performance in private commercial banks.

5.1. Conclusion

The study analysed Dashen Bank's credit performance, with a particular focus on digital credit risk management practices, including automated credit scoring, digital loan organization, credit risk monitoring, automated credit collection, risk management dashboards, and regulatory compliance. The findings indicate that digital credit management strategies significantly enhance credit performance, with regulatory compliance emerging as the most influential factor. While automated credit scoring and risk management dashboards also demonstrated strong contributions to credit performance, variations in stakeholder experiences highlight areas requiring operational refinement. These results emphasize the

importance of digital transformation in banking to support risk mitigation, operational efficiency, and customer satisfaction.

A comprehensive review of Dashen Bank's credit management framework suggests a broadly favourable perception among stakeholders. Automated credit scoring models are recognized for their ability to predict creditworthiness with high accuracy, streamlining the decision-making process and reducing default risks. Similarly, risk management dashboards provide essential real-time insights into credit risk, strengthening proactive intervention strategies. Despite these advantages, stakeholder concerns regarding data privacy and the inclusivity of automated processes persist. The varying standard deviations across different metrics suggest that confidence in digital systems is not uniformly shared, pointing to gaps in transparency and customer engagement.

To address these concerns while building on existing strengths, Dashen Bank should prioritize continuous employee training and improve communication regarding its automated credit systems. Strengthening governance mechanisms and adopting customer-centric strategies will be essential for fostering trust and ensuring broader accessibility. Regular evaluations and refinements of digital credit management processes will help maintain alignment with industry best practices, reinforcing operational effectiveness and long-term financial stability.

5.2. Recommendation

Based on the findings of the study, the following possible recommendations are forwarded by the researcher to for Dashen bank:

- ✓ **Enhance Automated Credit Scoring Systems** Dashen Bank should invest in strengthening its automated credit scoring systems by integrating a wider range of alternative data sources, including mobile usage behaviour, digital payment histories, utility records, and behavioural analytics. These data inputs can significantly improve the predictive accuracy of credit assessments, enabling the bank to better identify creditworthy individuals who may lack traditional financial documentation. This approach not only enhances risk evaluation but also promotes financial inclusion by extending credit access to underserved segments such as informal workers and small-scale entrepreneurs. To maintain the integrity and reliability of these models, the bank must implement periodic validation protocols, ensuring that scoring algorithms remain fair, transparent, and free from systemic bias. Ethical safeguards—such as

explainable AI techniques and customer consent mechanisms—should be embedded within the system to uphold regulatory compliance and build trust among borrowers. By modernizing its credit scoring infrastructure, Dashen Bank can reduce default rates, improve portfolio quality, and position itself as a leader in data-driven lending within Ethiopia's evolving financial landscape.

- ✓ **Streamline Digital Loan Origination Processes** To enhance operational efficiency and deliver a seamless customer experience, Dashen Bank should modernize its digital loan origination systems by adopting end-to-end automation across the application lifecycle. This includes automating document verification, integrating biometric authentication for secure onboarding, and enabling real-time decision-making through intelligent credit engines. A well-designed, user-friendly interface with a simplified application workflow can significantly reduce turnaround time, minimize manual errors, and improve customer satisfaction. Furthermore, embedding risk assessment protocols within the digital platform ensures that speed does not compromise credit quality. By streamlining these processes, the bank can accelerate loan approvals, expand its customer base, and strengthen its competitive position in Ethiopia's evolving digital financial landscape.
- ✓ **Strengthen Digital Credit Risk Monitoring and Dashboard Capabilities** Dashen Bank should enhance its digital credit risk monitoring infrastructure by developing real-time analytics tools and interactive dashboards that provide comprehensive insights into borrower behaviour, portfolio performance, and emerging risk patterns. These systems should be integrated with predictive analytics to enable early detection of potential defaults and support proactive intervention strategies. Continuous updates and cross-departmental accessibility are essential to ensure that decision-makers across credit, risk, and operations units can respond swiftly to evolving credit conditions. A robust monitoring framework will not only improve credit performance but also reinforce institutional resilience in a dynamic lending environment.
- ✓ **Improve Automated Credit Collection Mechanisms** To reduce delinquency rates and improve repayment behaviour, Dashen Bank should expand its use of automated credit collection tools. These include SMS reminders, mobile payment prompts, and predictive alerts tailored to individual borrower profiles. When integrated with customer relationship management (CRM) systems, these tools can support personalized engagement strategies that foster trust and encourage timely repayments.

Automated collections also reduce operational costs and improve recovery efficiency, contributing to stronger portfolio performance and enhanced customer retention.

- ✓ **Reinforce Regulatory Compliance and Ethical Lending Practices** As digital credit operations evolve, Dashen Bank must ensure that its practices remain fully aligned with national regulatory frameworks and international standards. This requires the implementation of regular compliance audits, transparent algorithmic decision-making processes, and robust data protection protocols. Establishing a dedicated compliance unit focused on digital credit risk will enable the bank to monitor regulatory adherence, respond to policy changes, and uphold ethical lending principles. Such measures are critical for maintaining public trust, mitigating reputational risk, and ensuring long-term sustainability in the digital lending space.
- ✓ Develop a Standalone Digital Credit Risk Management Policy To ensure strategic clarity and operational effectiveness, Dashen Bank is advised to formulate a dedicated digital credit risk management policy separate from its general credit policy. This document should define specific procedures, tools, and governance structures tailored to digital lending environments. It should also outline roles and responsibilities, escalation protocols, and performance indicators that reflect the unique characteristics of digital credit products. A standalone policy will provide a focused framework for managing digital credit risks, support regulatory compliance, and guide the bank's digital transformation efforts with precision and accountability.

5.3 Suggestions for further research

Future research could explore data privacy and security in digital credit risk management, particularly in automated systems that process sensitive financial data. As financial institutions increasingly rely on digital platforms for credit assessment and lending decisions, concerns over cybersecurity and the ethical use of consumer data have become more pressing. Investigating the effectiveness of current data protection policies and examining customer trust in automated credit evaluation systems could provide valuable insights into the challenges of balancing technological efficiency with regulatory compliance. Additionally, assessing banks' preparedness against cybersecurity threats, such as fraud detection and identity theft mitigation strategies, will help shape future policies for strengthening digital credit risk management frameworks.

Further studies could also conduct comparative analyses of digital credit risk management strategies across different banking institutions, examining how varying financial structures

and regulatory environments influence credit performance outcomes. By comparing implementation models in local, regional, and international banking contexts, researchers can identify best practices that enhance risk management efficiency while maintaining accessibility for borrowers. Moreover, studying how financial regulations evolve to support digital transformation can provide insights into policy development for ensuring responsible automation in credit scoring and risk monitoring. Analyzing how banks integrate compliance mechanisms into their digital credit systems could help financial institutions refine their strategies to achieve both operational efficiency and strong governance in credit performance management.

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Appendix

ADDIS ABABA UNIVERSITY

Postsgraduate program

Departement of Accounting and Finance

Dear participants:

The questionnaire is prepared by **student Rekik Laiyk** for the purpose of conducting thesis on **the effectiveness of digital credit risk management practices in case of Dashen bank).** Your honest response is very much important input to our thesis. I want to assure that your privacy for responding to this questionnaire is completely kept in secret. I know that your time is valuable, and I hope that you will take the time (an estimated 15-20 minutes) to complete the questionnaire. Please attempt to answer all the questions and click one appropriate box that best suits your perspective for each statement. Thank you very much for your time and assistance.

☞ Direction:

- There is no need of writing your name.
- Please indicate your answer by putting "✓" mark in the box and write your reason where it is needed.

The researcher: Rekik Laike

Contact address:

E-mail: ✉rekiklaike42**@gmail.com**

PART I: DEMOGRAPHIC OR GENERAL INFORMATION

Choose the suitable answer and tick (□) in the box given for each question.

1. Gender : Female ☐ Male ☐
2. Age group : 18-25 ☐ 26-30years ☐ 31-35 years ☐ above 35 ☐
3. Marital status : Single ☐ Divorce ☐ Married ☐
4. Education status

Certificate ☐ First degree ☐

Diploma ☐ Master and above ☐

☐

5. Job position: Casher ☐ Accountant ☐ Front officer ☐

Credit officer ☐ Director ☐ Others ☐

6. What is your level of experience in the banking/finance industry?

1-5 Years ☐ 6-10 years ☐ 11-15 years ☐ More than 15 years ☐

Part Ii: Basic Questions on Digital Credit Risk Management Practices

1. Which of the following best describes Dashen Bank's digital credit risk management practices?

A. Fully digitized and automated
B. Partially digitized with some manual processes
C. Mostly manual with limited digital elements
D. Don't know/Not sure

2. Which of the following are key components of Dashen Bank's digital credit risk management framework? (Select all that apply)

A. Credit scoring and modelling
B. Automated credit application and approval
C. Ongoing monitoring and early warning systems
D. Data analytics and risk reporting
E. Cybersecurity and data protection

3. How does Dashen Bank identify and assess digital credit risks? (Select all that apply)

A. Automated risk monitoring and alerts
B. Periodic risk assessments and audits
C. Reliance on expert judgment

D. Benchmarking against industry standards

4. What digital/technological tools does Dashen Bank use for credit risk management? (Select all that apply)

A. Loan origination and underwriting systems
B. Credit risk modeling and analytics software
C. Automated early warning and portfolio monitoring
D. Blockchain and distributed ledger technologies

5. How does Dashen Bank ensure data security and privacy in its digital credit risk management processes?

A. Strong encryption, access controls, and cybersecurity measures
B. Compliance with data protection regulations and industry standards
C. Regular security audits and monitoring
D. All of the above

6. What are the key benefits that Dashen Bank has achieved through its digital credit risk management practices? (Select all that apply)

A. Improved credit risk assessment and decision-making
B. Faster and more efficient lending processes
C. Enhanced portfolio monitoring and early risk detection
D. Reduced operational costs and improved productivity

7. What areas of digital credit risk management does Dashen Bank aim to improve or expand in the future?

A. Automation and AI-powered credit decisioning
B. Advanced data analytics and risk modeling
C. Integrated digital lending and risk management platforms
D. Cybersecurity and data governance

8. What areas of digital credit risk management does Dashen Bank aim to improve or expand in the future?

A. Automation and AI-powered credit decisioning
B. Advanced data analytics and risk modeling
C. Integrated digital lending and risk management platforms
D. Cybersecurity and data governance

Directions: This part of questionnaires intends to find your expectations and perception about customer satisfaction level on your bank. Indicating ticking (√) to ‘5’ means strongly agree,

‘4’agree, ‘3’ Neutral, ‘2’ disagree and ‘1’ strongly disagrees. There are no rights or wrong answers; the researcher interested in is a number that best shows your perception about your customer satisfaction on your respective bank.

No.	Bank's Credit performance	1	2	3	4	5
1.	The bank's overall credit portfolio quality has improved over the past 12 months.					
2.	The bank's non-performing loan ratio has decreased compared to the previous year.					
3.	The bank's credit loss provisions as a percentage of total loans have declined.					
4.	The bank's risk-adjusted return on its credit portfolio has increased.					
5.	The bank's credit customers are satisfied with the overall quality of credit products and services.					
6.	The bank has been able to expand its credit portfolio and customer base while maintaining credit quality.					
7.	The bank's credit performance metrics compare favorably to industry benchmarks and the bank's own historical performance.					
A.	**Automated Credit Scoring**					
8.	The bank's automated credit scoring models accurately predict the creditworthiness of borrowers.					
9.	The use of automated credit scoring has led to a reduction in default rates and improved credit performance.					
10.	The bank's automated credit scoring models are regularly updated and validated to ensure their effectiveness.					
11.	The bank's employees have a good understanding of how the automated credit scoring models work and their limitations.					
12.	The bank has established robust governance and oversight mechanisms to ensure the responsible and ethical use of automated credit scoring.					
13.	The bank's automated credit scoring models are designed to avoid bias and discrimination against vulnerable or underserved borrower segments.					
14.	The bank's customers are satisfied with the fairness and transparency of the automated credit scoring process.					
B.	**Digital Loan Origination Processes**					
15.	The bank's digital loan origination processes have improved the efficiency and speed of loan approval and disbursement.					
16.	The digital loan origination processes have enhanced the bank's ability to assess and mitigate credit risks.					

17.	The digital loan origination processes have improved the customer experience and increased customer satisfaction.					
18.	The bank has implemented robust data privacy and security measures to protect customer information in the digital loan origination processes.					
19.	The bank's employees have been adequately trained and equipped to effectively utilize the digital loan origination tools and systems.					
20.	The digital loan origination processes have enabled the bank to reach and serve a wider range of borrowers, including underserved segments.					
21.	The bank regularly reviews and enhances its digital loan origination processes to adapt to changing customer needs and market conditions.					
C.	**Digitized Credit Risk Monitoring**					
22.	The bank's digital loan origination processes have improved the efficiency and speed of loan approval and disbursement.					
23.	The digital loan origination processes have enhanced the bank's ability to assess and mitigate credit risks.					
24.	The digital loan origination processes have improved the customer experience and increased customer satisfaction.					
25.	The bank has implemented robust data privacy and security measures to protect customer information in the digital loan origination processes.					
26.	The bank's employees have been adequately trained and equipped to effectively utilize the digital loan origination tools and systems.					
27.	The digital loan origination processes have enabled the bank to reach and serve a wider range of borrowers, including underserved segments.					
28.	The bank regularly reviews and enhances its digital loan origination processes to adapt to changing customer needs and market conditions.					
D.	**Automated Credit Collections**					
29.	The bank's automated credit collection processes have improved the efficiency and effectiveness of debt recovery efforts.					
30.	The automated credit collection processes have led to a reduction in non-performing loans and improved credit portfolio quality.					
31.	The bank's automated credit collection processes are designed to treat customers fairly and respectfully.					
32.						

	The bank has implemented robust data privacy and security measures to protect customer information in the automated credit collection processes.					
33.	The bank's employees have been adequately trained to effectively utilize the automated credit collection tools and systems.					
34.	The bank regularly reviews and enhances its automated credit collection processes to align with regulatory requirements and industry best practices.					
35.	The bank's customers are satisfied with the transparency and fairness of the automated credit collection processes.					
E.	**Risk Management Dashboards**					
36.	The bank's risk management dashboards provide comprehensive and real-time visibility into the bank's credit risk profile.					
37.	The risk management dashboards enable the bank to identify and address credit risk hotspots in a timely manner.					
38.	The data and analytics presented in the risk management dashboards are used effectively to inform credit risk management strategies and decisions.					
39.	The bank's employees have the necessary skills and knowledge to interpret and utilize the information presented in the risk management dashboards.					
40.	The bank regularly reviews and enhances the risk management dashboards to ensure they meet the evolving needs of the organization.					
41.	The risk management dashboards have enabled the bank to improve its overall credit portfolio performance.					
42.	The bank's senior management and board of directors actively use the risk management dashboards to oversee and guide the bank's credit risk management efforts.					
F	**Regulatory Compliance**					
43.	The bank's credit risk management practices are fully aligned with all relevant regulatory requirements and guidelines.					
44.	The bank's regulatory compliance efforts have enabled it to maintain a healthy credit portfolio and avoid costly regulatory penalties.					
45.	The bank's employees have a deep understanding of the regulatory requirements and their importance in ensuring the bank's long-term credit performance.					
46.						

	The bank has invested in advanced technologies and processes to automate and streamline its regulatory compliance activities.					
47.	The bank's senior management and board of directors actively oversee and guide the bank's regulatory compliance efforts to ensure their effectiveness.					
48.	The bank's regulatory compliance practices have enabled it to enhance its reputation and credibility with regulators, investors, and customers.					
49.	The bank regularly reviews and updates its regulatory compliance processes to keep pace with evolving regulatory requirements and industry best practices.					