Beyond Income: The Complexities of Credit Risk in Developing Countries

Nartey Menzo, Benjamin Prince and Mogre, Diana and Asuamah Yeboah, Samuel

Catholic University of Ghana Fiapre, Sunyani Technical University, Sunyani Technical University

16 August 2024

Beyond Income: The Complexities of Credit Risk in Developing Countries

Benjamin Prince Nartey Menzo
Catholic University of Ghana Fiapre
Faculty of Economics and Business Administration
Email: aggorrmp@yahoo.com
Phone: 0209394353

Diana Mogre
Department of General Agriculture
Faculty of Applied Science and Technology
Sunyani Technical University
Phone: 0543630296
Email: dnmogre@ yahoo.com

Samuel Asuamah Yeboah
Faculty of Business and Management Studies,
Sunyani Technical University, Ghana.
Corresponding Author Email address: nelkonsegal@yahoo.com
Phone: 0244723071
ORCID: https://orcid.org/0000-0002-9866-6235

ABSTRACT

This paper investigates the complex interplay of factors contributing to credit risk in developing countries. Focusing on borrower characteristics, we examine the interconnected roles of income levels, employment stability, and credit history. The analysis reveals how lower income, volatile employment, and limited credit access can significantly amplify credit risk. The paper explores the challenges posed by these factors in developing economies and proposes strategies to mitigate credit risk and foster financial inclusion. By understanding these dynamics, policymakers and financial institutions can implement targeted interventions to enhance economic resilience and promote sustainable development.

KEYWORDS: Credit risk, Developing countries, Income levels, Employment stability, Credit history, Financial inclusion, Economic resilience, Policy interventions

JEL CODE: G21, O16, O17

INTRODUCTION

In global finance, understanding and managing credit risk is crucial, especially in developing economies where financial ecosystems tend to be more volatile and less robust (Allen, 2022; Zhou, 2023; Céu & Gaspar, 2024; Shao et al., 2024). The dynamics of credit risk in these regions are shaped by various factors, including borrower characteristics, economic conditions, and institutional frameworks (Lee et al., 2017; Bouteille & Coogan-Pushner, 2021; Jackson & Tamuke, 2022). This paper explores three key microeconomic determinants-income levels, employment stability, and credit history, that significantly impact credit risk in developing countries, employing a theoretical lens to deepen the analysis.

Grounding the discussion in information asymmetry theory (Akerlof, 1984; Akerlof et al., 2021), we recognise that lenders in developing economies often operate with incomplete or imperfect information about borrowers' ability to repay loans. In particular, income levels are a central factor in assessing creditworthiness, reflecting borrowers' capacity to service debts and manage financial challenges (Mhlanga, 2021; Locurcio et al., 2021; Lekhelebana, 2022).

According to credit rationing theory (Jaffee & Stiglitz, 1990), low-income borrowers may be excluded from formal credit markets due to perceived high risk, exacerbating financial exclusion (Kofarmata & Danlami, 2018; Kling et al., 2022). We examine how income dynamics influence debt servicing capacity, savings behaviour, and susceptibility to economic shocks, emphasising the importance of addressing these vulnerabilities in credit risk assessments.

Employment stability is another key determinant of credit risk, influencing borrowers' ability to maintain consistent income streams and repay debts (Muruku, 2015; Khangalah, 2016; Naili & Lahrichi, 2022). Drawing from labour market segmentation theory (Peck, 1989; Leontaridi, 1998), the distinction between formal and informal employment is critical in developing economies, where a significant portion of the workforce remains in precarious informal jobs (Moyo et al., 2014; Stiglitz, 2015). This instability exacerbates credit risk, as borrowers in informal employment often experience irregular income and job insecurity. We explore the implications of these employment conditions for both borrowers and lenders, as well as the role of policy interventions in stabilising employment and reducing credit risk.

Finally, credit history serves as a vital indicator of creditworthiness and repayment behaviour, providing insights into borrowers' financial reliability (Gatimu, 2014; Adanu & Boateng, 2015; Nkeng & Kehdinga, 2023; Edunjobi & Odejide, 2024; Muduli & Dash, 2024). However, in developing countries, many individuals lack formal credit histories due to financial exclusion, complicating risk assessment and access to formal credit markets (Gichuki et al., 2014; Mujeri, 2015; Bernards, 2022). Through the lens of financial inclusion theory (Beck & Demirgüç-Kunt, 2008; Kling et al., 2022), we examine how limited access to formal credit infrastructure creates barriers to financial inclusion and perpetuates reliance on informal credit channels, often at higher costs and with greater risks.

By analysing the interplay between income levels, employment stability, and credit history, this paper aims to provide a comprehensive understanding of credit risk dynamics in developing economies. Through empirical analysis and theoretical insights, we highlight the importance of targeted interventions, institutional reforms, and innovative policy frameworks in mitigating credit risk, promoting financial inclusion, and fostering sustainable economic growth in these contexts.

PROBLEM STATEMENT

The challenge of effectively identifying, assessing, and managing credit risk in developing economies stems from the unique structural constraints and economic uncertainties prevalent in these regions. Low-income levels, characterised by limited savings, income instability, and vulnerability to external shocks, pose significant barriers to borrowers' ability to service debts and access formal credit markets. Drawing on liquidity preference theory (Modigliani, 1944; Keynes, 1971), low-income borrowers tend to prioritise liquidity and short-term consumption over long-term debt repayment, heightening the risk for lenders.

Employment instability further compounds credit risk. According to dual-sector theory (Lewis, 1954), the divide between formal and informal employment sectors is pronounced in developing countries, where informal sector workers face greater job insecurity and irregular income. This instability exacerbates economic vulnerability, reducing borrowers' ability to maintain consistent loan repayments, which in turn affects credit risk models.

Additionally, the absence of robust credit infrastructure and comprehensive credit histories presents significant challenges for risk assessment in developing economies. The adverse selection problem (Akerlof, 1978) is particularly pronounced, as lenders lack sufficient information about potential borrowers, leading to higher default rates and limited access to formal credit markets. Marginalised populations are disproportionately affected, as limited access to formal credit drives them toward informal credit markets, which are characterised by higher interest rates, greater risk, and weaker recourse mechanisms. This perpetuates cycles of financial vulnerability and instability, reinforcing barriers to formal financial inclusion.

Addressing these challenges requires a nuanced understanding of the interplay between income, employment, and credit history in the context of credit risk management. By incorporating theoretical perspectives from information asymmetry, credit rationing, and financial inclusion, this study seeks to inform evidence-based policy interventions, institutional reforms, and strategic initiatives aimed at mitigating credit risk and fostering inclusive economic growth in developing countries.

RESEARCH QUESTIONS

This study seeks to answer the following research questions: How do income levels influence credit risk dynamics in developing countries, and what are the underlying mechanisms through which lower income levels impact borrowers' ability to service debts and access formal credit markets? What are the implications of employment stability on credit risk assessment and management in developing economies, particularly in the context of economic volatility, informal sector employment, and structural barriers to stable employment? How does the absence of comprehensive credit histories affect risk assessment, financial inclusion, and access to formal credit markets in developing countries, and what are the potential implications for borrowers, lenders, and policymakers?

LIMITATIONS OF THE STUDY

This study is subject to several limitations. The availability and quality of data in developing economies can be inconsistent, hindering the depth and accuracy of the analysis. Limited data infrastructure and varying reporting standards may constrain the scope of the research. The diverse socio-economic conditions, cultural contexts, and regulatory environments across developing countries make it challenging to generalise findings and insights. Credit risk is constantly evolving due to changing economic conditions, market dynamics, and regulatory developments. A snapshot analysis may not fully capture the fluid nature of credit risk over time. Moreover, credit risk in developing economies is influenced by a complex interplay of factors, making it challenging to isolate and quantify the specific impact of each factor.

SCOPE OF THE STUDY

This research is specifically focused on investigating the key determinants of credit risk in developing economies, with a particular emphasis on income levels, employment stability, and credit history dynamics. By conducting a comparative analysis of credit risk management practices, policy interventions, and institutional frameworks across different developing countries and regions, the study aims to provide actionable recommendations for enhancing credit risk management, promoting financial stability, and supporting sustainable economic growth.

By acknowledging these limitations and delineating the scope of the study, the aim is to conduct a rigorous and comprehensive analysis of credit risk dynamics in developing economies, while also providing actionable recommendations for addressing challenges and harnessing opportunities in credit risk management.

METHODOLOGY

The methodology for this study builds upon a foundation of prior research, including works by Linares et al. (2018), Zamore et al. (2018), Bhatore et al. (2020), and Shi et al. (2022). The methodology is outlined as follows:

Defined Research Questions: The systematic review began by clearly defining the research questions to guide the review process. These questions focused on understanding credit risk dynamics in developing economies, with specific attention to income levels, employment stability, and credit history dynamics.

Developed Search Strategy: A comprehensive search strategy was developed to identify relevant literature from academic databases, scholarly journals, grey literature, and relevant websites. Keywords related to credit risk, developing economies, income, employment, credit history, and related terms were used to retrieve relevant articles.

Established Inclusion and Exclusion Criteria: Inclusion and exclusion criteria were established to ensure that only relevant studies were included in the review. Studies had to focus on credit risk management practices, policy interventions, or empirical analysis of credit risk dynamics in developing economies. Exclusion criteria included studies not written in English.

Conducted Screening Process: A two-stage screening process was conducted to assess the eligibility of studies for inclusion in the review. In the first stage, titles and abstracts of retrieved studies were screened against the inclusion and exclusion criteria. In the second stage, full-text articles of potentially relevant studies were reviewed to determine final inclusion.

Performed Data Extraction: Relevant data from included studies were extracted using a standardised data extraction form. Key information extracted included study objectives, methodology, sample characteristics, key findings, and implications for credit risk management in developing economies.

Assessed Quality: The quality of included studies was assessed using appropriate quality appraisal tools or criteria relevant to the study design and methodology. Studies were evaluated based on criteria such as research design, data collection methods, sample size, statistical analysis, and validity of findings.

Synthesised Findings: The findings from the included studies were synthesised using a thematic analysis approach. Common themes, patterns, and trends related to credit risk dynamics, income levels, employment stability, and credit history were identified and analysed across the literature.

Conducted Meta-analysis: where sufficient homogeneity existed among included studies, a meta-analysis was conducted to quantitatively synthesise findings and assess the overall effect size of credit risk factors in developing economies.

Interpreted and Provided Implications: The synthesised findings were interpreted in the context of the research questions and objectives of the systematic review. Implications for policy, practice, and future research were discussed based on the insights gleaned from the literature.

Reported Results: The systematic review was reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency and reproducibility in the reporting of methods, findings, and conclusions.

By adhering to a systematic review methodology, the aim was to conduct a rigorous and comprehensive analysis of credit risk dynamics in developing economies, while also providing actionable insights for policymakers, practitioners, and researchers.

BORROWER CHARACTERISTICS INFLUENCING CREDIT RISK

Credit risk is a significant concern in developing countries, driven by several borrower-specific microeconomic factors. This section delves into how borrowers' income levels, employment stability, and credit history influence their likelihood of defaulting, with a focus on developing economies.

Income Levels: Borrowers' income levels are a critical determinant of their ability to service debts and, consequently, their credit risk. Low-income borrowers often struggle to meet their financial obligations, increasing the likelihood of default, particularly when alternative sources of income or savings are lacking (Duygan-Bump & Grant, 2009; Abbas & Christensen, 2010; Schicks, 2014; French & McKillop, 2016; Baker, 2018). These households typically allocate most of their income to essential living expenses, such as housing, food, and healthcare, leaving limited capacity to repay loans (Drehmann & Juselius, 2012; Hunt, 2015; Lusardi & Tufano, 2015).

Moreover, low-income households are less likely to have sufficient savings, which limits their financial resilience when faced with unforeseen expenses or income disruptions (Mitchell, 2017; Hasler et al., 2018; Haider, 2020). Without an adequate financial buffer, these borrowers are more vulnerable to shocks, making them prone to default. Additionally, limited access to affordable credit forces lower-income individuals to rely on high-cost, short-term financing options, further increasing financial strain (Aryeetey & Fenny, 2007; Claessens & Perotti, 2007; Karlan & Morduch, 2010; Mujeri, 2015).

Seasonal income fluctuations, common among lower-income households in sectors like agriculture and informal labour, also contribute to heightened credit risk. The inconsistency of income throughout the year can disrupt borrowers' ability to make timely loan repayments (Rosenzweig, 1988; Ellis, 1998; Winters et al., 2004; Khandker & Mahmud, 2012; Devereux et al., 2013; Wossen et al., 2018; Alamgir et al., 2021). Additionally, lower-income borrowers are disproportionately affected by external shocks such as economic recessions, inflationary pressures, and natural disasters, further increasing their likelihood of default (Llanto, 2016; Bolton et al., 2021; Becchetti et al., 2024; Finkelstein et al., 2024; Notowidigdo et al., 2024).

The limited access of lower-income individuals to formal financial services exacerbates their credit risk. Many face barriers to opening bank accounts or securing savings and insurance products, leaving them reliant on informal credit sources, which tend to carry higher costs and greater instability (Demirgüç-Kunt

& Klapper, 2013; Birkenmaier et al., 2019; McGarity & Caplan, 2019). Addressing the challenges associated with income levels requires a holistic approach that includes expanding access to financial services, promoting income-generating opportunities, and strengthening social safety nets. Such efforts can enhance financial resilience and reduce credit risk among vulnerable populations (Mujeri, 2015).

Employment Stability: Borrowers' employment stability is a significant factor influencing their ability to repay loans. Stable employment ensures a regular income, which allows borrowers to meet debt obligations on time (Kodongo & Kendi, 2013; Thakor, 2014; Hanson et al., 2015; Mngomezulu, 2016; Shim, 2019; Ratnawati, 2020). Conversely, employment instability, which is prevalent in developing economies, heightens credit risk as borrowers with irregular or uncertain income streams are more likely to default (Baklouti, 2013; Schicks, 2014; Mukono, 2015; Muthoni et al., 2017; Devaraj & Patel, 2020).

Employment stability directly impacts borrowers' ability to maintain a steady income and repay loans throughout the loan term. A secure job provides financial predictability, allowing borrowers to plan for expenses and unexpected financial emergencies (Eberly & Krishnamurthy, 2014; Setterfield et al., 2016). Lenders often view stable employment as a positive indicator of creditworthiness, as it signals lower risk (M’ithibutu, 2017; Caplinska & Tvaronavičienė, 2020; Bouteille & Coogan-Pushner, 2021; Ferretti, 2021).

In many developing countries, a large portion of the workforce is employed in the informal sector, where job security is limited and wages are often low (Chen, 2016; Siegmann & Schiphorst, 2016). Workers in the informal sector are particularly vulnerable to economic shocks, which can disrupt their employment and income, increasing their credit risk (Wellalage & Locke, 2016; Stuart et al., 2018). Additionally, economic volatility, including fluctuating commodity prices and political instability, exacerbates unemployment and underemployment, further heightening credit risk (Katusiime et al., 2016; Alagidede & Ibrahim, 2017; Umaru et al., 2018; Morina et al., 2020; Olamide et al., 2022).

Structural barriers, such as limited access to education and gender disparities in the labour market, also contribute to employment instability and, by extension, credit risk (Graham et al., 2019; Adeniran et al., 2020; Heintz, 2021; Lopez-Acevedo et al., 2021). Policy interventions aimed at promoting job creation, enhancing labour market flexibility, and improving social protections are essential for reducing credit risk related to employment instability (Robb et al., 2014; Blattman & Ralston, 2015; Fiore et al., 2019).

Credit History: Credit history is a key indicator of borrowers' creditworthiness and repayment behaviour, making it a crucial determinant of credit risk (Çallı & Coşkun, 2021; Goel & Rastogi, 2023a; Mladentseva, 2023). A positive credit history reflects responsible financial management and reduces the perceived risk of default (Ibtissem & Bouri, 2013; Yuan et al., 2018; Doumpos et al., 2019). Conversely, a limited or negative credit history increases perceived risk, often resulting in higher borrowing costs or denial of access to formal credit markets (Fuseini, 2015; Marr et al., 2016; Mhlanga, 2021; Choudhury et al., 2022).

The availability and quality of credit reporting infrastructure vary widely across developing countries, impacting the completeness and accuracy of borrowers' credit histories (Siddiqi, 2017; Tchamyou & Asongu, 2017; Zheng et al., 2022). In regions where credit reporting systems are underdeveloped, lenders face challenges in assessing credit risk, which may result in more conservative lending practices (Golin & Delhaise, 2013; Benami & Carter, 2021).

Many borrowers in developing countries rely on informal credit markets due to limited access to formal financial institutions (Campero & Kaiser, 2013; Adams, 2019). While informal credit options may offer short-term liquidity, they often come with higher interest rates and a lack of consumer protections, which increase financial instability and credit risk (Demont, 2016; Srinivas, 2016).

Improving financial inclusion requires a concerted effort to strengthen credit reporting infrastructure, promote financial literacy, and provide access to formal credit options, which can help mitigate the challenges associated with limited credit histories (Cabeza-García et al., 2019; Achugamonu et al., 2020). By leveraging data analytics and technology, lenders can enhance their credit risk assessment models, enabling more accurate evaluations of borrowers' creditworthiness (Shirzadi, 2015; Zamore et al., 2018).

In summary, borrower characteristics such as income levels, employment stability, and credit history are essential factors that influence credit risk in developing countries. Low income levels, unstable employment, and limited or negative credit histories contribute to higher default risks. To address these challenges, targeted policy interventions are needed to improve financial inclusion, strengthen credit reporting systems, and create more stable employment opportunities. These efforts will enhance credit risk management and promote sustainable economic growth in developing economies.

SYNTHESIS OF THE REVIEW

In developing countries, the key microeconomic determinants of credit risk are closely tied to borrower characteristics, which directly influence their capacity to repay loans and the financial institutions' exposure to defaults.

Income Levels: Borrowers' income levels are a critical determinant of credit risk, as lower incomes tend to reduce debt servicing capacity, increase reliance on informal credit markets, and make borrowers more vulnerable to financial shocks (Duygan-Bump & Grant, 2009; Abbas & Christensen, 2010; Schicks, 2014; Baker, 2018). With limited savings and unstable income streams, especially in the case of seasonal employment in sectors like agriculture, borrowers are more prone to defaulting on loans (Mitchell, 2017; Haider, 2020; Alamgir et al., 2021).

Employment Stability: The stability of borrowers' employment plays a significant role in their ability to service loans. Stable employment ensures a consistent income stream, while economic volatility and informal employment in developing economies heighten credit risk (Baklouti, 2013; Schicks, 2014; Katusiime et al., 2016; Stuart et al., 2018). Furthermore, individuals working in informal sectors are more vulnerable to economic shocks, which can increase the risk of default (Chen, 2016; Siegmann & Schiphorst, 2016).

Credit History: A borrower's past repayment behaviour is another key indicator of creditworthiness. A positive credit history typically reduces perceived credit risk, while negative or limited credit history signals a higher risk of default (Çallı & Coşkun, 2021; Goel & Rastogi, 2023a; Mladentseva, 2023). In developing countries, limited access to formal financial institutions and underdeveloped credit reporting systems can prevent the accumulation of positive credit histories, further complicating risk assessment for lenders (Sangwan et al., 2021; Tchamyou & Asongu, 2017).

To mitigate credit risk associated with these borrower characteristics, policy interventions should focus on promoting financial inclusion, improving employment stability, and strengthening credit reporting infrastructure (Blattman & Ralston, 2015; Sukumaran, 2015; Benami & Carter, 2021). Expanding access to affordable financial services and improving economic resilience through targeted social and economic policies can reduce the default risk in developing countries (Robb et al., 2014; Kumar & Ahuja, 2023).

DISCUSSIONS

This study's findings underscore the critical role of borrower characteristics-income levels, employment stability, and credit history-in shaping credit risk in developing countries. Beyond their impacts, these factors interact in complex ways, compounding financial vulnerabilities and affecting both borrowers and lenders. The interplay between these determinants highlights the multifaceted nature of credit risk and the need for holistic approaches to risk management.

Income Levels and Employment Stability: A Compounding Effect

Income levels and employment stability are deeply intertwined, with each factor reinforcing the effects of the other on credit risk. Borrowers with low, unstable incomes are more likely to face financial hardships, which increase their likelihood of default. The findings show that lower-income borrowers often work in precarious, informal employment, where income volatility is common (Drehmann & Juselius, 2012; Hunt, 2015). In such cases, the irregularity of income streams exacerbates the challenges borrowers face in meeting debt obligations. When income is both low and unpredictable, borrowers are less capable of building savings or absorbing financial shocks, intensifying their vulnerability to default (Mitchell, 2017; Haider, 2020).

The interplay between these factors reveals a cycle of financial instability: low-income households without stable employment are less able to plan financially, which increases their reliance on short-term, high-interest loans. These loans, in turn, reduce their future financial flexibility. Policies targeting job creation and improving income stability-especially through the formalisation of the labour market-could therefore have a dual effect, improving both income levels and employment predictability, thereby mitigating credit risk.

Employment Stability and Credit History: Impact on Access to Credit

The relationship between employment stability and credit history further complicates the credit risk landscape. Borrowers with unstable employment are less likely to maintain a positive credit history, as fluctuating income streams make it harder to adhere to consistent repayment schedules. Lenders use credit history as a key indicator of reliability, and borrowers with irregular employment often accumulate negative or incomplete credit histories (Schicks, 2014; Kodongo & Kendi, 2013). This dynamic limits their access to formal credit, pushing them into informal financial markets characterized by higher costs and less favourable loan terms (Campero & Kaiser, 2013; Mhlanga, 2021).

Moreover, the lack of robust credit reporting systems in many developing countries compounds the problem. Without access to accurate credit data, lenders may overestimate the risk of lending to individuals with inconsistent employment, even if those borrowers are otherwise creditworthy (Siddiqi, 2017; Tchamyou & Asongu, 2017). Strengthening credit infrastructure by incorporating alternative data sources such as employment history or payment records from utility services-could help address this gap and provide a more comprehensive assessment of borrowers' creditworthiness.

Income Levels and Credit History: Barriers to Financial Inclusion

The study also highlights a significant interplay between income levels and credit history. Borrowers with low incomes are less likely to have established credit histories, as they may not qualify for traditional financial products due to their limited financial means (Schicks, 2014; Francis, 2017). This creates a barrier to financial inclusion, as these borrowers remain outside formal financial systems and cannot build the credit records needed to access affordable loans. In turn, the absence of a positive credit history prevents borrowers from improving their financial standing, creating a cycle of exclusion from formal credit markets (Mwangangi, 2014; Claessens et al., 2018).

Addressing this issue requires a combination of financial inclusion initiatives and reforms to credit reporting infrastructure. By expanding access to affordable credit and promoting the use of alternative credit-building mechanisms, policymakers can help low-income borrowers establish a positive credit history, improving their long-term financial prospects. Additionally, integrating informal credit transactions into formal credit reporting systems could help bridge the gap for borrowers who have historically relied on informal lending channels.

The Interplay of External Shocks and Borrower Vulnerability

External economic shocks, such as inflation, natural disasters, or political instability, exacerbate the vulnerabilities stemming from income, employment, and credit history. Borrowers with lower incomes and unstable employment are particularly susceptible to these shocks, as they lack the financial resilience to absorb sudden economic downturns (Llanto, 2016; Bolton et al., 2021). A key insight from this study is that these factors interact with external risks to magnify credit risk. For example, a borrower with unstable employment in a sector affected by seasonal income variability-such as agriculture-may faces heightened default risk during periods of drought or market fluctuation (Rosenzweig, 1988; Wossen et al., 2018).

The findings suggest that a more comprehensive risk assessment approach, one that takes into account not only individual borrower characteristics but also macroeconomic factors, is essential for effective credit risk management. Lenders should integrate stress-testing models that simulate the impact of external shocks on borrowers' ability to repay, especially in economies with high levels of income volatility.

Policy Implications and Future Research Directions

The interplay between these factors suggests that addressing credit risk in developing countries requires integrated policy interventions. Efforts to formalise employment, improve access to affordable financial products, and strengthen credit reporting infrastructure will have a multiplicative effect on reducing credit risk by simultaneously improving income stability, creditworthiness, and financial resilience.

Future research should explore how fintech innovations and alternative credit assessment models can help bridge the gap for borrowers with limited traditional credit histories. Additionally, longitudinal studies that track the impact of macroeconomic shocks on borrower characteristics over time would provide valuable insights into how external factors interact with microeconomic determinants of credit risk. This research could inform the development of more flexible, adaptive risk assessment tools tailored to the unique contexts of developing economies.

CONCLUSIONS

This study concludes that credit risk in developing economies is influenced by a complex interplay of income levels, employment stability, and credit history. Lower income levels significantly increase the risk of default due to challenges related to debt servicing capacity, limited savings, vulnerability to external shocks, and restricted access to financial services. Employment stability is a crucial factor in determining borrowers' capacity to repay loans, with informal sector employment, economic volatility, and structural barriers contributing to employment instability and amplifying credit risk. Moreover, credit history is a fundamental determinant of credit risk, but limited access to credit reporting infrastructure, reliance on informal credit markets, and financial exclusion hinder credit risk management efforts and impede inclusive economic growth.

To address these challenges, comprehensive strategies are needed to enhance financial inclusion, promote income generation opportunities, and strengthen social safety nets. Policymakers, financial institutions, and development organisations should prioritise initiatives to improve financial literacy, expand access to formal credit, and enhance credit reporting mechanisms. By leveraging data analytics, technological advancements, and innovative financial solutions, credit risk management practices can be improved, access to credit can be expanded, and the resilience of financial ecosystems in developing economies can be strengthened.

POLICY RECOMMENDATIONS

Enhanced Financial Inclusion: Governments and financial institutions should prioritise efforts to increase access to affordable credit, savings accounts, and insurance products in underserved areas. Invest in digital financial services, such as mobile banking and community banking initiatives, and promote financial literacy programs to empower individuals and businesses.

Strengthened Labor Market Promote job creation by investing in vocational training, entrepreneurship development, and support for small and medium-sized enterprises. Foster labour market flexibility by implementing policies that promote flexible employment arrangements and reduce barriers to job mobility.

Improved Credit Reporting Infrastructure: Invest in developing reliable credit reporting systems to facilitate the accumulation of positive credit histories. Enhance data privacy and information sharing among financial institutions to ensure comprehensive credit assessments.

Regulation of Informal Credit Markets: Protect borrowers from predatory lending practices by establishing consumer protection laws and licensing requirements for moneylenders. Ensure transparency in informal lending transactions to empower borrowers and reduce information asymmetry.

Responsible Lending Practices: Financial institutions should adopt stringent credit assessment procedures, offer financial education to borrowers, and provide flexible repayment options. Employ effective risk management strategies to mitigate credit risk.

Leveraging Technology and Data Analytics: Utilise machine learning algorithms, predictive modelling techniques, and alternative data sources to enhance credit risk assessment processes. Develop more accurate credit scoring models to identify emerging risk factors and make informed lending decisions.

Collaborative Partnerships: Forge partnerships between governments, financial institutions, community-based organisations, and international agencies to address systemic barriers to financial inclusion and credit access. Collaborate to leverage resources and implement effective programs that address the specific needs of underserved populations.

Evaluation and Monitoring: Develop clear performance metrics to measure the effectiveness of policy interventions. Regularly assess the outcomes of policies and identify areas for improvement. Seek feedback from stakeholders to ensure accountability and transparency in policy implementation.

By implementing these policy recommendations, stakeholders can create an enabling environment for inclusive economic growth, mitigate credit risk, and enhance the resilience of financial systems in developing countries. These measures will contribute to building more equitable and sustainable financial ecosystems that benefit all segments of society.

FUTURE RESEARCH DIRECTIONS

This study suggests several avenues for future research to further advance our understanding of credit risk management and financial inclusion in developing economies.

First, the impact of technological innovations, such as blockchain, artificial intelligence, and digital lending platforms, on credit risk management practices and financial inclusion should be explored. Investigating the scalability, effectiveness, and adoption barriers of these technologies can provide valuable insights for policymakers and financial institutions.

Second, the long-term effects of policy interventions aimed at enhancing financial inclusion and mitigating credit risk need to be assessed. Longitudinal studies can evaluate the sustainability of initiatives, measure their impact on economic development outcomes, and identify best practices for replication in diverse contexts.

Third, research incorporating behavioural economics perspectives can shed light on borrowers' decision-making processes, risk perceptions, and financial behaviour in developing country contexts. Understanding psychological factors influencing credit usage and repayment behaviour can inform the design of targeted interventions and personalised financial products.

Fourth, comparative studies across different developing countries can provide valuable insights into credit risk dynamics, regulatory frameworks, and institutional arrangements. Examining variations in credit risk management practices and financial inclusion strategies can help identify transferable lessons and best practices for policy adoption.

Fifth, future research should adopt a gender-sensitive approach to analyse the differential impact of credit risk management policies and financial inclusion initiatives on men and women in developing countries. Exploring gender disparities in access to credit, employment opportunities, and financial literacy can inform gender-responsive policy interventions.

Sixth, given the increasing recognition of climate change and environmental risks, research should investigate their implications for credit risk management in developing countries. Examining the intersection of environmental factors, creditworthiness, and financial resilience can inform adaptive strategies and risk mitigation measures.

Seventh, studies evaluating the social impact and sustainability of microfinance institutions (MFIs) in mitigating credit risk and promoting inclusive economic growth are warranted. Assessing the effectiveness of microfinance programs in empowering marginalised communities, reducing poverty, and fostering entrepreneurship can inform policy decisions and program design.

Finally, given the growing reliance on data analytics and digital financial services, research should examine data privacy concerns, ethical implications, and regulatory challenges associated with credit risk management practices in developing countries. Exploring mechanisms for ensuring data security, protecting consumer rights, and promoting responsible data usage is essential.

By addressing these research gaps, scholars can contribute to advancing knowledge, informing evidence-based policy formulation, and promoting inclusive and sustainable development in developing countries. Collaboration between academia, government agencies, financial institutions, and civil society organisations is crucial to facilitate interdisciplinary research and drive positive change in credit risk management and financial inclusion agendas.

REFERENCES

1. Abbas, S. A., & Christensen, J. E. (2010). The role of domestic debt markets in economic growth: An empirical investigation for low-income countries and emerging markets. *IMF Staff Papers*, *57*(1), 209-255.
2. Achugamonu, U. B., Adetiloye, K. A., Adegbite, E. O., Babajide, A. A., & Akintola, F. A. (2020). Financial exclusion of bankable adults: Implication on financial inclusive growth among twenty-seven SSA countries. *Cogent Social Sciences*, *6*(1), 1730046.
3. Adams, D. W. (2019). Taking a fresh look at informal finance. In *Informal finance in low-income countries* (pp. 5-23). Routledge.
4. Adanu, K., & Boateng, E. (2015). Predicting loan repayment default among second-tier borrowers in Ghana. *International Journal of Entrepreneurship and Small Business*, *24*(3), 417-432.
5. Adeniran, A., Ishaku, J., & Yusuf, A. (2020). Youth employment and labour market vulnerability in Ghana: Aggregate trends and determinants. *West African youth challenges and opportunity pathways*, 187-211.
6. Adeoye, O. B., Addy, W. A., Ajayi-Nifise, A. O., Odeyemi, O., Okoye, C. C., & Ofodile, O. C. (2024). Leveraging AI and data analytics for enhancing financial inclusion in developing economies. *Finance & Accounting Research Journal*, *6*(3), 288-303.
7. Akerlof, G. A. (1970). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, *84*(3), 488-500.
8. Akerlof, G. A. (1984). *An economic theorist's book of tales*. Cambridge University Press.
9. Akerlof, G. A., Spence, A. M., & Stiglitz, J. E. (2001). *Markets with Asymmetric information*. Nobel Foundation.
10. Akerlof, George A. (1978). "The market for 'lemons': Quality uncertainty and the market mechanism". *Uncertainty in Economics*. pp. 235–251.
11. Alabi, A. M., Oguntoyinbo, F. N., Abioye, K. M., John-Ladega, A. A., Obiki-Osafiele, A. N., & Daraojimba, C. (2023). Risk management in Africa's financial landscape: a review. *International Journal of Advanced Economics*, *5*(8), 239-257.
12. Alagidede, P., & Ibrahim, M. (2017). On the causes and effects of exchange rate volatility on economic growth: Evidence from Ghana. *Journal of African Business*, *18*(2), 169-193.

13. Alamgir, M. S., Furuya, J., Kobayashi, S., Mostafiz, R. B., & Ahmed, M. R. (2021). Farm income, inequality, and poverty among farm families of a flood-prone area in Bangladesh: climate change vulnerability assessment. *GeoJournal*, *86*, 2861-2885.
14. Allen, F. (2022). *Credit Risk in Emerging Markets*. Cambridge University Press.
15. Allen, H. J. (2022). *Driverless Finance: Fintech's Impact on Financial Stability*. Oxford University Press.
16. Aryeetey, E., & Fenny, A. P. (2007). Promoting Access to Low Cost Finance for Investment in sub-Saharan Africa.
17. Atiase, V. Y. (2017). *Impact of credit risk management practices on micro financing the poor for poverty alleviation in Africa: Insights from Ghana* (Doctoral dissertation, Bloemfontein: Central University of Technology, Free State).
18. Baker, S. R. (2018). Debt and the response to household income shocks: Validation and application of linked financial account data. *Journal of Political Economy*, *126*(4), 1504-1557.
19. Baklouti, I. (2013). Determinants of microcredit repayment: The case of Tunisian Microfinance Bank. *African Development Review*, *25*(3), 370-382.
20. Bazarbash, M. (2019). *Fintech in financial inclusion: machine learning applications in assessing credit risk*. International Monetary Fund.
21. Becchetti, L., Bellucci, D., & Pisani, F. (2024). The fittest survive: regional resilience and exposure to financial crisis. *International Review of Economics & Finance*, 103652.
22. Beck, T., & Demirgüç-Kunt, A. (2008). Access to Financial Services: A Review of the Evidence and Policy Implications. *World Bank Policy Research Working Paper No. 4662*.
23. Benami, E., & Carter, M. R. (2021). Can digital technologies reshape rural microfinance? Implications for savings, credit, & insurance. *Applied Economic Perspectives and Policy*, *43*(4), 1196-1220.
24. Bernards, N. (2022). *A critical history of poverty finance: Colonial roots and neoliberal failures* (p. 240). Pluto Press.
25. Bhatore, S., Mohan, L., & Reddy, Y. R. (2020). Machine learning techniques for credit risk evaluation: a systematic literature review. *Journal of Banking and Financial Technology*, *4*(1), 111-138.
26. Birkenmaier, J., Despard, M., Friedline, T., & Huang, J. (2019). Financial inclusion and financial access. In *Encyclopedia of social work*.
27. Blattman, C., & Ralston, L. (2015). Generating employment in poor and fragile states: Evidence from labor market and entrepreneurship programs. *Available at SSRN 2622220*.
28. Bolton, P., Kacperczyk, M., Hong, H. G., & Vives, X. (2021). *Resilience of the financial system to natural disasters*. CEPR Press.
29. Bouteille, S., & Coogan-Pushner, D. (2021). *The handbook of credit risk management: originating, assessing, and managing credit exposures*. John Wiley & Sons.
30. Bullock, H. E., Toolis, E. E., Sencion, B., & Cadenas, M. T. (2020). The high price of economic marginalization: Low-income Latinas' experiences with mainstream banking and alternative financial services. *Peace and Conflict: Journal of Peace Psychology*, *26*(2), 136.
31. Cabeza-García, L., Del Brio, E. B., & Oscanoa-Victorio, M. L. (2019, November). Female financial inclusion and its impacts on inclusive economic development. In *Women's Studies International Forum* (Vol. 77, p. 102300). Pergamon.

32. Çallı, B. A., & Coşkun, E. (2021). A longitudinal systematic review of credit risk assessment and credit default predictors. *Sage Open*, *11*(4), 21582440211061333.
33. Campbell, D., Grant, A., & Thorp, S. (2022). Reducing credit card delinquency using repayment reminders. *Journal of Banking & Finance*, *142*, 106549.
34. Campero, A., & Kaiser, K. (2013). *Access to credit: awareness and use of formal and informal credit institutions* (No. 2013-07). Working Papers.
35. Caplinska, A., & Tvaronavičienė, M. (2020). Creditworthiness place in credit theory and methods of its evaluation. Entrepreneurship and sustainability issues, *7*(3), 2542.
36. Céu, M. S., & Gaspar, R. M. (2024). A Review on Climate Change, Credit Risk and Agriculture. *Rural Sustainability Research*, *51*(346), 38-49.
37. Chen, M. A. (2016). The informal economy: Recent trends, future directions. *New Solutions: A Journal of Environmental and Occupational Health Policy*, *26*(2), 155-172.
38. Choudhury, A., Jones, J., & Opare-Addo, M. (2022). Perceived risk and willingness to provide loan to smallholder farmers in Ghana. *Journal of African Business*, *23*(1), 23-40.
39. Claessens, S., & Perotti, E. (2007). Finance and inequality: Channels and evidence. *Journal of comparative Economics*, *35*(4), 748-773.
40. Claessens, S., & Rojas-Suarez, L. (2016). Financial regulations for improving financial inclusion. *Center for Global Development*, *2*(3), 44-53.
41. Claessens, S., Frost, J., Turner, G., & Zhu, F. (2018). Fintech credit markets around the world: size, drivers and policy issues. *BIS Quarterly Review September*.
42. Demirgüç-Kunt, A., & Klapper, L. (2013). Measuring financial inclusion: Explaining variation in use of financial services across and within countries. *Brookings papers on economic activity*, *2013*(1), 279-340.
43. Demont, T. (2016). Microfinance spillovers: A model of competition in informal credit markets with an application to Indian villages. *European Economic Review*, *89*, 21-41.
44. Devaraj, S., & Patel, P. C. (2020). Student debt, income-based repayment, and self-employment: evidence from NLSY 1997 and NFCS 2015. *Applied Economics*, *52*(35), 3809-3829.
45. Devereux, S., Sabates-Wheeler, R., & Longhurst, R. (Eds.). (2013). *Seasonality, rural livelihoods and development*. Routledge.
46. Dewan, S., & Peek, P. (2007). *Beyond the employment/unemployment dichotomy: measuring the quality of employment in low income countries*. ILO.
47. Dhawan, S. M., Wilson, K., & Zademach, H. M. (2022). Formal Micro-Credit for Refugees: New Evidence and Thoughts on an Elusive Path to Self-Reliance. *Sustainability*, *14*(17), 10469.
48. Dlabay, L. (2015). Informal financial services: A proposed research agenda. In *Management, society, and the informal economy* (pp. 179-198). Routledge.
49. Doumpos, M., Lemonakis, C., Niklis, D., & Zopounidis, C. (2019). Analytical techniques in the assessment of credit risk. *EURO advanced tutorials on operational research. Cham: Springer International Publishing*.
50. Drehmann, M., & Juselius, M. (2012). Do debt service costs affect macroeconomic and financial stability? *BIS Quarterly Review September*.
51. Duygan-Bump, B., & Grant, C. (2009). Household debt repayment behaviour: what role do institutions play? *Economic Policy*, *24*(57), 108-140.

52. Eberly, J., & Krishnamurthy, A. (2014). Efficient credit policies in a housing debt crisis. *Brookings Papers on Economic Activity*, *2014*(2), 73-136.
53. Ediagbonya, V., & Tioluwani, C. (2023). The role of fintech in driving financial inclusion in developing and emerging markets: issues, challenges and prospects. *Technological Sustainability*, *2*(1), 100-119.
54. Edunjobi, T. E., & Odejide, O. A. (2024). Theoretical frameworks in AI for credit risk assessment: Towards banking efficiency and accuracy. *International Journal of Scientific Research Updates 2024*, *7*(01), 092-102.
55. Ellis, F. (1998). Household strategies and rural livelihood diversification. *The journal of development studies*, *35*(1), 1-38.
56. Ezzahid, E., & Elouaourti, Z. (2021). Financial inclusion, mobile banking, informal finance and financial exclusion: micro-level evidence from Morocco. *International Journal of Social Economics*, *48*(7), 1060-1086.
57. Ferretti, F. (2021). Peer-to-peer lending and EU credit laws: A creditworthiness assessment, credit-risk analysis or… neither of the two? *German Law Journal*, *22*(1), 102-121.
58. Finkelstein, A., Notowidigdo, M. J., Schilbach, F., & Zhang, J. (2024). *Lives vs. livelihoods: The impact of the great recession on mortality and welfare* (No. w32110). National Bureau of Economic Research.
59. Fiore, E., Sansone, G., & Paolucci, E. (2019). Entrepreneurship education in a multidisciplinary environment: evidence from an entrepreneurship programme held in Turin. *Administrative Sciences*, *9*(1), 28.
60. Francis, K. S. (2017). Influence of Credit Assessment Process on Repayment of Kenya Commercial Bank Loans in South Sudan. *Journal of Finance and Accounting*, *5*(3), 89-97.
61. French, D., & McKillop, D. (2016). Financial literacy and over-indebtedness in low-income households. *International Review of Financial Analysis*, *48*, 1-11.
62. Fuseini, G. A. R. I. B. A. (2015). *Small and Medium-Sized enterprises'(SMEs') access to credit in Ghana: determinants and challenges* (Doctoral dissertation, University of Ghana).
63. Gatimu, E. M. (2014). *Assessing institutional factors contributing to loan defaulting in microfinance institutions in Kenya* (Doctoral dissertation, Egerton University).
64. George, A. S. (2024). India's Employment Crisis: Causes, Consequences, and Potential Solutions. *Partners Universal International Research Journal*, *3*(3), 38-60.
65. Gichuki, J. A. W., Njeru, A., & Tirimba, O. I. (2014). Challenges facing micro and small enterprises in accessing credit facilities in Kangemi Harambee market in Nairobi City County, Kenya. *International Journal of Scientific and Research Publications*, *4*(12), 1-25.
66. Goel, A., & Rastogi, S. (2023a). Understanding the impact of borrowers' behavioural and psychological traits on credit default: review and conceptual model. *Review of Behavioral Finance*, *15*(2), 205-223.
67. Goel, A., & Rastogi, S. (2023b). Credit scoring of small and medium enterprises: a behavioural approach. *Journal of Entrepreneurship in Emerging Economies*, *15*(1), 46-69.
68. Golin, J., & Delhaise, P. (2013). *The bank credit analysis handbook: a guide for analysts, bankers and investors*. John Wiley & Sons.
69. Graham, L., Williams, L., & Chisoro, C. (2019). Barriers to the labour market for unemployed graduates in South Africa. *Journal of Education and Work*, *32*(4), 360-376.

70. Haider, H. (2020). Mitigating the economic impacts of epidemics and financial crises: Focus on middle-income countries. *K4D Helpdesk Report*, *812*.
71. Hansen, J., Hellin, J., Rosenstock, T., Fisher, E., Cairns, J., Stirling, C., ... & Campbell, B. (2019). Climate risk management and rural poverty reduction. *Agricultural Systems*, *172*, 28-46.
72. Hanson, S. G., Shleifer, A., Stein, J. C., & Vishny, R. W. (2015). Banks as patient fixed-income investors. *Journal of Financial Economics*, *117*(3), 449-469.
73. Hasler, A., Lusardi, A., & Oggero, N. (2018). Financial fragility in the US: Evidence and implications. *Global Financial Literacy Excellence Center, The George Washington University School of Business: Washington, DC*.
74. Heintz, J. (2021). Stalled Progress: Why labour markets are failing women. In *Women's Economic Empowerment* (pp. 51-74). Routledge.
75. Hunt, C. (2015). Economic implications of high and rising household indebtedness. *Reserve Bank of New Zealand Bulletin*, *78*(1), 1-11.
76. Ibtissem, B., & Bouri, A. (2013). Credit risk management in microfinance: The conceptual framework. *ACRN Journal of Finance and Risk Perspectives*, *2*(1), 9-24.
77. Jackson, E. A., & Tamuke, E. (2022). Credit risk management and the financial performance of domiciled banks in Sierra Leone: an empirical analysis. *Journal of Economic Policy Researches*, *9*(1), 139-164.
78. Jaffee, D., & Stiglitz, J. (1990). Credit rationing. *Handbook of monetary economics*, *2*, 837-888.
79. Jardim, J., Bártolo, A., & Pinho, A. (2021). Towards a global entrepreneurial culture: A systematic review of the effectiveness of entrepreneurship education programs. *Education Sciences*, *11*(8), 398.
80. Karlan, D., & Morduch, J. (2010). Access to finance. In *Handbook of development economics* (Vol. 5, pp. 4703-4784). Elsevier.
81. Katusiime, L., Agbola, F. W., & Shamsuddin, A. (2016). Exchange rate volatility–economic growth nexus in Uganda. *Applied Economics*, *48*(26), 2428-2442.
82. Keynes, J. M. (1936). *The General Theory of Employment, Interest, and Money*. Macmillan.
83. Keynes, J. M. (1971-89). The Collected Writings of John Maynard Keynes [JMK] 30 vols, London: Macmillan for the Royal Economic Society.
84. Khandker, S. R., & Mahmud, W. (2012). *Seasonal hunger and public policies: evidence from Northwest Bangladesh*. World Bank Publications.
85. Khangalah, M. O. (2016). *Determinants of commercial banks' lending behaviour in Kenya: Case of state-owned banks in Kenya* (Doctoral dissertation, University Of Nairobi).
86. Kling, G., Pesqué-Cela, V., Tian, L., & Luo, D. (2022). A theory of financial inclusion and income inequality. *The European Journal of Finance*, *28*(1), 137-157.
87. Kling, G., Pesqué-Cela, V., Tian, L., & Luo, D. (2022). A theory of financial inclusion and income inequality. *The European Journal of Finance*, *28*(1), 137-157.
88. Kodongo, O., & Kendi, L. G. (2013). Individual lending versus group lending: An evaluation with Kenya's microfinance data. *Review of Development Finance*, *3*(2), 99-108.
89. Kofarmata, Y. I., & Danlami, A. H. (2019). Determinants of credit rationing among rural farmers in developing areas: Empirical evidence based on micro level data. *Agricultural Finance Review*, *79*(2), 158-173.

90. Kumar, J., & Ahuja, A. (2023). Financial inclusion: Key determinants and its impact on financial well-being. *Global Business and Economics Review*.
91. Lee, M., Gaspar, R. E., & Villaruel, M. L. (2017). Macroprudential policy frameworks in developing Asian economies. *Asian Development Bank Economics Working Paper Series*, (510).
92. Lekhelebana, L. G. (2022). *Credit risk management impact on loan performance in development finance institutions in South Africa* (Doctoral dissertation, Doctoral dissertation, Nelson Mandela University). http://vital. seals. ac. za: 8080/vital/access/manager/Repository/vital: 58217).
93. Leontaridi, M. (1998). Segmented labour markets: theory and evidence. *Journal of economic surveys*, *12*(1), 103-109.
94. Lewis, W. A. (1954). Economic development with unlimited supplies of labour. The Manchester School, 22(2), 139–191. https://doi.org/10.1111/j.1467-9957.1954. tb00021.x
95. Linares-Espinós, E., Hernández, V., Domínguez-Escrig, J. L., Fernández-Pello, S., Hevia, V., Mayor, J., ... & Ribal, M. J. (2018). Methodology of a systematic review. *Actas Urológicas Españolas (English Edition)*, *42*(8), 499-506.
96. Llanto, G. M. (2016). *Risks, shocks, building resilience: Philippines* (No. 2016-09). PIDS Discussion Paper Series.
97. Locurcio, M., Tajani, F., Morano, P., Anelli, D., & Manganelli, B. (2021). Credit risk management of property investments through multi-criteria indicators. *Risks*, *9*(6), 106.
98. Lopez-Acevedo, G., Betcherman, G., Khellaf, A., & Molini, V. (2021). *Morocco's jobs landscape: identifying constraints to an inclusive labor market*. World Bank Publications.
99. Lusardi, A., & Tufano, P. (2015). Debt literacy, financial experiences, and overindebtedness. *Journal of Pension Economics & Finance*, *14*(4), 332-368.
100. M'ithibutu, M. J. (2017). *Contribution of Credit Risk Management Strategies on Financial Stability: An Evaluation of Commercial Banks in Kilifi County* (Doctoral Dissertation, Pwani Unversity).
101. Marr, A., Winkel, A., Van Asseldonk, M., Lensink, R., & Bulte, E. (2016). Adoption and impact of index-insurance and credit for smallholder farmers in developing countries: A systematic review. *Agricultural Finance Review*, *76*(1), 94-118.
102. McGarity, S. V., & Caplan, M. A. (2019). Living outside the financial mainstream: Alternative financial service use among people with disabilities. *Journal of Poverty*, *23*(4), 317-335.
103. Mhlanga, D. (2021). Financial inclusion in emerging economies: The application of machine learning and artificial intelligence in credit risk assessment. *International journal of financial studies*, *9*(3), 39.
104. Mitchell, D. S. (2017). Shortfall Savings: The All-Important Financial Buffer Against Volatility. *EPIC*
105. Mladentseva, N. (2023). *Beyond Credit History: Investigating the Psychological Characteristics of Creditworthy Borrowers in a Micro-Loan Context* (Doctoral dissertation, City, University of London).
106. Mngomezulu, N. M. (2016). *Impact of credit facilities on savings among middle income earners in the North West Department of Education* (Doctoral dissertation, North-West University (South Africa)).

107. Modigliani, F. (1944). Liquidity preference and the theory of interest and money. *Econometrica, journal of the econometric society*, 45-88.

108. Mohammed, A. S., & Uraguchi, N. (2017). Social Inclusion and Financial Inclusion in Developing Countries. *Asian Journal of Public Affairs*, 10(2), 22-38.

109. Mohammed, E. Y., & Uraguchi, Z. B. (2017). *Financial Inclusion for Poverty Alleviation*. Taylor & Francis.

110. Moradi, S., & Mokhatab R. F. (2019). A dynamic credit risk assessment model with data mining techniques: evidence from Iranian banks. *Financial Innovation*, *5*(1), 1-27.

111. Morina, F., Hysa, E., Ergün, U., Panait, M., & Voica, M. C. (2020). The effect of exchange rate volatility on economic growth: Case of the CEE countries. *Journal of Risk and Financial Management*, *13*(8), 177.

112. Moyo, J., Nandwa, B., Council, D. E., Oduor, J., & Simpasa, A. (2014). Financial sector reforms, competition and banking system stability in Sub-Saharan Africa. *New perspectives*, *14*(1), 1-47.

113. Muduli, S., & Dash, S. K. (2024). Creditworthiness: The Role of Trust in the Socioeconomic Network. *Journal of Quantitative Economics*, 1-18.

114. Mujeri, M. K. (2015). Improving access of the poor to financial services. *A Report prepared for the General Economics Division of the Planning Commission to serve as a background study for preparing the 7th Five Year Plan (2016-2020) of Bangladesh*.

115. Mukono, A. (2015). *Determinants of loan repayment by small and medium enterprises in Nairobi County, Kenya* (Doctoral dissertation, University of Nairobi).

116. Muruku, S. M. (2015). *Factors influencing default in servicing agricultural loans: a case study of Agricultural Finance Corporation, Machakos County* (Doctoral dissertation).

117. Mushtaq, R., & Bruneau, C. (2019). Microfinance, financial inclusion and ICT: Implications for poverty and inequality. *Technology in Society*, *59*, 101154.

118. Muthoni, M. P. L., Mutuku, G. K., & Riro (2017). Influence of Loan Characteristics on Microcredit Default in Kenya: A Comparative Analysis of Microfinance Institutions and Financial Intermediaries. *IOSR Journal of Business and Management*, 19, 39-59.

119. Mwangangi, S. M. (2014). *An analysis of the efficacy of borrower credit scores in predicting credit repayment performance: a case study in agricultural finance corporation-AFC* (Doctoral dissertation, University of Nairobi).

120. Mwangi, B. W., & Muturi, W. (2016). Effects of credit risk management on loan repayment performance of commercial banks in Kenya. *International Academic Journal of Economics and Finance*, *2*(2), 1-24.

121. Naili, M., & Lahrichi, Y. (2022). The determinants of banks' credit risk: Review of the literature and future research agenda. *International Journal of Finance & Economics*, *27*(1), 334-360.

122. Ngong, C. A., Thaddeus, K. J., & Onwumere, J. U. J. (2022). Microfinancial inclusion nexus poverty alleviation: the case of Nigeria. *Journal of Economic and Administrative Sciences*, *38*(4), 581-601.

123. Nkeng, T. H., & Kehdinga, E. N. (2023). Credit Management as a Predictor to the Sustainability of Microfinance Institutions: a portfolio quality analysis. *Journal of Academic Finance*, *14*(2).

124. Notowidigdo, M., Finkelstein, A., Schilbach, F., & Zhang, J. (2024). Lives vs. livelihoods: The impact of the great recession on mortality and welfare. *University of Chicago, Becker Friedman Institute for Economics Working Paper*, (2024-14).

125. O'Toole, C., & Slaymaker, R. (2021). Repayment capacity, debt service ratios and mortgage default: An exploration in crisis and non-crisis periods. *Journal of Banking & Finance*, *133*, 106271.

126. Ogunwole, E. B., Asaleye, J. A., Tabash, M. I., Ahmed, A., Elsantil, Y., & Lawal, A. I. (2024). Debt service and information communication technology on employment and productivity: Short-and long-run implications. *Scientific African*, *24*, e02227.

127. Oh, J. H., & Johnston, W. J. (2014). Credit lender-borrower relationship in the credit card market–Implications for credit risk management strategy and relationship marketing. *International Business Review*, *23*(6), 1086-1095.

128. Olamide, E., Ogujiuba, K., & Maredza, A. (2022). Exchange rate volatility, inflation and economic growth in developing countries: Panel data approach for SADC. *Economies*, *10*(3), 67.

129. Pardo-Garcia, C., & Barac, M. (2020). Promoting employability in higher education: A case study on boosting entrepreneurship skills. *Sustainability*, *12*(10), 4004.

130. Peck, J. A. (1989). Labour market segmentation theory. *Labour & Industry: a journal of the social and economic relations of work*, *2*(1), 119-144.

131. Rao, C., Lin, H., & Liu, M. (2020). Design of comprehensive evaluation index system for P2P credit risk of "three rural" borrowers. *Soft Computing*, *24*, 11493-11509.

132. Ratnawati, K. (2020). The impact of financial inclusion on economic growth, poverty, income inequality, and financial stability in Asia. *The Journal of Asian Finance, Economics and Business*, *7*(10), 73-85.

133. Robb, A., Valerio, A., & Barton, B. (Eds.). (2014). *Entrepreneurship education and training: insights from Ghana, Kenya, and Mozambique*. World Bank Publications.

134. Rosenzweig, M. R. (1988). Labor markets in low-income countries. *Handbook of development economics*, *1*, 713-762.

135. Ruiz O. C. (2013). From pawn shops to banks: The impact of formal credit on informal households. *World Bank policy research working paper*, (6634).

136. Salampasis, D., & Mention, A. L. (2018). FinTech: Harnessing innovation for financial inclusion. In *Handbook of blockchain, digital finance, and inclusion, volume 2* (pp. 451-461). Academic Press.

137. Sangwan, S., Nayak, N. C., Harshita, & Sangwan, V. (2021). Borrowers' credit risk factors, perception towards repayment interventions and moral hazard in loan delinquency: an investigation of Indian microfinance institutions. *Applied Economics*, *53*(56), 6554-6569.

138. Schicks, J. (2014). Over-indebtedness in microfinance–an empirical analysis of related factors on the borrower level. *World development*, *54*, 301-324.

139. Scott, A. O., Amajuoyi, P., & Adeusi, K. B. (2024). Effective credit risk mitigation strategies: Solutions for reducing exposure in financial institutions. *Magna Scientia Advanced Research and Reviews*, *11*(1), 198-211.

140. Setterfield, M., Kim, Y. K., & Rees, J. (2016). Inequality, debt servicing and the sustainability of steady state growth. *Review of Political Economy*, *28*(1), 45-63.

141. Shao, H., Zhou, B., Wang, D., & An, Z. (2024). Navigating Uncertainty: The Micro-Level Dynamics of Economic Policy Uncertainty and Systemic Financial Risk in China's Financial Institutions. *Journal of the Knowledge Economy*, 1-31.
142. Sharizan, S., Redzuan, N. H., & Rosman, R. (2021). Issues and challenges of financial inclusion among low-income earners in rural areas of Malaysia. *Turkish Journal of Islamic Economics*, *8*.
143. Shi, S., Tse, R., Luo, W., D'Addona, S., & Pau, G. (2022). Machine learning-driven credit risk: a systemic review. *Neural Computing and Applications*, *34*(17), 14327-14339.
144. Shim, J. (2019). Loan portfolio diversification, market structure and bank stability. *Journal of Banking & Finance*, *104*, 103-115.
145. Shirzadi, N. (2015). *Credit risk modeling for multilateral lenders* (Doctoral dissertation, University of Glasgow).
146. Siddiqi, N. (2017). *Intelligent credit scoring: Building and implementing better credit risk scorecards*. John Wiley & Sons.
147. Siegmann, K. A., & Schiphorst, F. (2016). Understanding the globalizing precariat: From informal sector to precarious work. *Progress in Development Studies*, *16*(2), 111-123.
148. Soederberg, S. (2013). Universalising financial inclusion and the securitisation of development. *Third World Quarterly*, *34*(4), 593-612.
149. Srinivas, H. (2016). Reasons why the informal credit market is used by the poor: Policy implications for microcredit programmes in developing countries. *GDRC research output*.
150. Sripakdeevong, P., & Townsend, R. M. (2022). The Village Money Market Revealed: Financial Access and Credit Chain Links Between Formal and Informal Sectors. *Annual Review of Financial Economics*, *14*, 1-20.
151. Stiglitz, J. E. (2015). Macroeconomic fluctuations, inequality, and human development. In *Macroeconomics and human development* (pp. 31-58). Routledge.
152. Stuart, E., Samman, E., & Hunt, A. (2018). Informal is the new normal. *Improving the lives of workers at risk of being left behind. London: Overseas Development Institute*.
153. Sukumaran, K. (2015). Financial access: inclusion and literacy. *Annual Research Journal of Symbiosis Centre for Management Studies*, *3*(1), 188-207.
154. Tchamyou, V. S. (2019). The role of information sharing in modulating the effect of financial access on inequality. *Journal of African Business*, *20*(3), 317-338.
155. Tchamyou, V. S., & Asongu, S. A. (2017). Information sharing and financial sector development in Africa. *Journal of African Business*, *18*(1), 24-49.
156. Thakor, A. V. (2014). Bank capital and financial stability: An economic trade-off or a Faustian bargain?. *Annu. Rev. Financ. Econ.*, *6*(1), 185-223.
157. Tran, H. T. T., & Le, H. T. T. (2021). The impact of financial inclusion on poverty reduction. *Asian Journal of Law and Economics*, *12*(1), 95-119.
158. Tsegaye, B. (2023). *Assessment of Credit Risk Management Practice in Case of Bank of Abyssinia SC* (Doctoral dissertation, St. Mary's University).
159. Umaru, H., Aguda, N. A., & Davies, N. O. (2018). The effects of exchange rate volatility on economic growth of West African English-speaking countries. *International journal of academic research in accounting, finance and management sciences*, *8*(4), 131-143.

160. Vlahović, A. (2014). Challenges to the implementation of a new framework for safeguarding financial stability. *Journal of Central Banking Theory and Practice*, *3*(3), 19-52.

161. Wellalage, N. H., & Locke, S. (2016). Informality and credit constraints: evidence from Sub-Saharan African MSEs. *Applied Economics*, *48*(29), 2756-2770.

162. Winters, L. A., McCulloch, N., & McKay, A. (2004). Trade liberalization and poverty: the evidence so far. *Journal of economic literature*, *42*(1), 72-115.

163. Wossen, T., Berger, T., Haile, M. G., & Troost, C. (2018). Impacts of climate variability and food price volatility on household income and food security of farm households in East and West Africa. *Agricultural systems*, *163*, 7-15.

164. Yanenkova, I., Nehoda, Y., Drobyazko, S., Zavhorodnii, A., & Berezovska, L. (2021). Modeling of bank credit risk management using the cost risk model. *Journal of Risk and Financial Management*, *14*(5), 211.

165. Yhip, T. M., Alagheband, B. M., Yhip, T. M., & Alagheband, B. M. (2020). Credit Analysis and Credit Management. *The Practice of Lending: A Guide to Credit Analysis and Credit Risk*, 3-46.

166. Yuan, Z., Wang, Z., & Xu, H. (2018). Credit risk assessment of peer-to-peer lending borrower utilizing BP neural network. In *Advances in Internetworking, Data & Web Technologies: The 5th International Conference on Emerging Internetworking, Data & Web Technologies (EIDWT-2017)* (pp. 22-33). Springer International Publishing.

167. Zamore, S., Ohene Djan, K., Alon, I., & Hobdari, B. (2018). Credit risk research: Review and agenda. *Emerging Markets Finance and Trade*, *54*(4), 811-835.

168. Zheng, K., Zheng, L. J., Gauthier, J., Zhou, L., Xu, Y., Behl, A., & Zhang, J. Z. (2022). Blockchain technology for enterprise credit information sharing in supply chain finance. *Journal of Innovation & Knowledge*, *7*(4), 100256.

169. Zhou, S. (2023). The Current State and Challenges of Financial Risk Management. *Highlights in Business, Economics and Management*, *21*, 188-196.