

Financial Literacy and Credit Performance among SMEs: A Behavioral Economics Perspective

TOLULOPE A SHOKUNBI
Westcliff University, California, U.S.A.

Abstract- Small and Medium Enterprises (SMEs) are essential to employment generation, poverty reduction, and innovation in emerging and developing economies. But, poor credit and financial flexibility often hamper their sustainability. Traditional SME loan default explanations emphasize structural constraints — collateral shortages and poor credit infrastructure — but lack the behavioral aspects of financial decision-making. This paper uses behavioral economics to investigate the interaction between financial literacy and cognitive biases to influence credit behavior and repayment performance of SME creditor behaviors and repayment. Based on bounded rationality, prospect theory and mental accounting, the study defines financial literacy as not only a measure of knowledge and numeracy but also as an activity within the behavioral competence promoting risk perception, borrowing discipline, and repayment attitudes. Based on survey data and credit data of SMEs across sectors, the paper develops a quantitative model linking financial literacy scores and behavioral bias associated with overconfidence, loss aversion and time inconsistency to quantitative credit outcomes. In this preliminary qualitative analysis, which is currently underway, higher financial literacy SMEs are significantly less likely to default, and more consistent repayment histories. But behavioral biases offset this relationship – overconfidence and short-termism often harmed the positive effect of literacy. This policy imperative is that behavioral insight would be integrated into the financial education and credit assessment in SME financial education and credit assessment. In concluding, the paper proposes a behavioral finance policy framework that includes literacy enhancement, cognitive bias mitigation, and “nudge-based” loan management. This approach allows SME financing to be re-formed into a purely informational challenge, into a behavioral optimization challenge, and to provide more inclusive and resilient credit environments for sustainable economic growth.

I. INTRODUCTION

1.1 Background

Small and Medium Enterprises (SMEs) dominate most economies with over 90% of world businesses, plus

more than 60% of employment in developing countries (World Bank, 2024). Despite its crucial role in innovation and employment creation, small and medium-sized enterprises remain experiencing a widespread funding problem. IFC, 2024 estimates that in the global SME finance gap, US\$5 trillion is being lost annually, resulting in the greatest fallout in Africa and Asia.

Traditional credit systems rely heavily on collateral-based lending and historical financial data. This is a generalist, but, who excludes smaller firms, that lack formal bookkeeping practices or tangible assets (Beck & Demirgüç-Kunt, 2020). Due to this, financial institutions perceive SMEs as high risk borrower, thus limited access to affordable and sustainable credit (OECD 2023).

Recently, researchers have concluded that a focus of economic literacy in recent years is not only important to credit performance, but also critical to financial inclusion. Financial literacy requires understanding and successful application of financial concepts such as budgeting, interest calculations, and risk management, as it is outlined in Lusardi & Mitchell 2014; Lusardi & Mitchell (2017). But behavioral economics shows that financial decisions are not rational, but; they are also affected by cognitive and emotional biases such as overconfidence, loss aversion, and present bias (Kahneman & Tversky 1979). In understanding these behavioral orientations as they are intertwined with understanding is an easier way of reflecting on SME financial behavior.

1.2 Significance of the Study

This article is a crucial contribution to bringing together informational and behavioral analysis of SME credit outcomes. Even though several studies have found that financial literacy helps to enhance loan repayment and financial management, few have examined the role of behavioral biases that mediate or

detract from this relationship (Xu & Zia 2012; Fernandes, Lynch, & Netemeyer 2014). To address behavioral economics, the paper proposes a behavioral approach to the nature of how some financially literate entrepreneurs still make poor financial decisions and how lenders can devise behavioral interventions to correct these behaviors (Thaler & Sunstein, 2008).

Plus, financial literacy is one of the core pillars of the financial inclusion policies that reflect the Sustainable Development Goals of UN Sustainable Development Goals (SDGs). Goal 8 on Decent Work and Economic Growth and Goal 9 on Industry, Innovation and Infrastructure emphasize inclusive access to finance as a contribution to sustainable development (United Nations, 2023). Specifically, empirical research suggests that financially literate SME owners are more likely to expand their businesses, to sustain employment, and to become resilient local economies (OECD, 2023).

1.3 Research Problem and Rationale

While much investment was made into SME financing projects, default rates continue to be high in emerging markets (IFC, 2024). This persistence cannot be explained by traditional explanations such as limited cash flow or poor market conditions (Karlan et al., 2016). Behavior studies have found that many small businesses mistake risks, delay repayment due to past bias, or suffer mental accounting errors that undermine credit behavior (Kahneman, 2011).

This project is related to the idea of incorporating behavioral economics into SME finance studies to make knowledge of human and psychological aspects of financial decision-making. In order to understand how financial literacy interacts with behavioral biases policymakers and lenders can design evidence-based credit interventions that improve repayment performance and minimize systemic risk, this research must be used by policy makers and lenders.

1.4 Research Questions

This research is informed by the following main research questions:

What are the effects of financial literacy on SME credit outcomes and repayment pattern?

To what extent do biases (e.g., overconfidence, loss aversion, time inconsistency) mediate the effect of financial literacy on credit outcomes?

How should behavioral insights be incorporated into SME financial education and credit risk mitigation mechanisms?

1.5 Conceptual Framework

The underlying conceptual framework of this study (Figure 1) posits that the direct effects of financial literacy (knowledge and application competence) on credit behavior and performance are contingent on behavioral biases. Literacy level in combination with ability to control one's own behavior is associated with better repayment outcomes, but cognitive distortions may interfere with the benefits of literacy (Fernandes et al., 2014; Karlan et al., 2016).

This framework draws from behavioral finance, cognitive psychology, and SME development theory, offering a multidisciplinary foundation for analyzing financial decision-making among entrepreneurs.

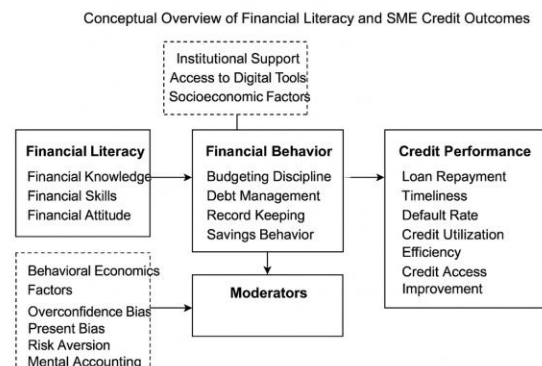


Figure 1: Conceptual Overview of Financial Literacy and SME Credit Outcomes

II. LITERATURE REVIEW

2.1 Theoretical Foundations

Financial Literacy Theory

Financial literacy theory suggests that knowledge, skills and attitudes about financial management drive decision-making (Lusardi & Mitchell, 2014). But, it illustrates the ability of business owners to measure credit terms, track cash flows and take investments as well. A financially educated businessperson can interpret the accounts, calculate interest rates, compare

credit options, and thus reduce loan repayment yields and access to affordable finance (Huston 2010, 2010). As Remund (2010) demonstrates, financial literacy encompasses trust and behavior competence. Increased literacy levels and a higher level of literacy skills enable SMEs to understand long-term consequences of debt, deal with operational risk, and negotiate in a collaborative manner with financial institutions. Similarly low literacy leads to excessive borrowing, poor debt management, and credit default (Akinson & Messy, 2012).

Behavioral Economics and Credit Behavior

The empirical literature in behavioral economics argues that psychological bias often inhibits the rational decision-making. In an instance of SME financing, these biases, such as present bias, overconfidence and loss aversion, can substantially disorient decision-making.

For instance, present bias causes entrepreneurs to underestimate the immediate gains, such as inventory growth, and underestimating future debt obligations such as loan repayments (Laibson 1997). Overconfidence may cause SME owners to overestimate their repayment capacities to over-borrow, or mis-manage loans (Barber & Odean, 2001). Loss aversion, a behavior which does not take risks, can inhibit risk taking, ultimately damaging investment and credit underutilization (Kahneman, 2011).

Such behavioral economics as an explanation and guide helps us to understand why financially educated individuals may still make bad financial decisions (Thaler & Sunstein, 2008). By drawing from behavioral information, policymakers can draw on nudges— low-cost behavioral interventions that are subtly guided by their good intentions without constraining choice.

Prospect Theory and SME Credit Decisions

Kahneman and Tversky (1979) found a theory that predicts how decision makers evaluate potential gains and losses from relative to a reference point instead of in absolute terms. SMEs are often risk-seeking in loss domains, for example using new loans in order to cover current ones, and risk-averse in gain domains,

for example, by not investing even after credit is available.

This symmetry in risk perception leads to the approach SMEs use to credit and repayment obligations. For instance, a short-lived business owner may find it necessary to take out a loan that she perceives as a means to “recover losses”; that is, to borrow another loan for short term. In contrast, when profits have grown the same entrepreneur can avoid credit because he is afraid of loss (Kahneman 2011; Barberis, 2013). Understanding such behavioral asymmetries allows financial institutions to design behaviorally informed credit assessment models that cover not only quantitative risk indicators, but psychological risk preferences.

2.2 Empirical Evidence

Financial Literacy and Credit Access

Empirical research has consistently observed that financial literacy is associated with better credit access and repayment performance (Cole, Sampson, & Zia, 2011; Xu & Zia, 2012). Literacy training in developing countries has been linked to improving bookkeeping, saving mobilization, and loan approval rates (Lusardi & Mitchell, 2014). On the Kenyan coast, two World Bank studies were published by the World Bank in 2023: SMEs receiving financial education had 27% lower default rates than non-medicants (World Bank, 2023).

Only a few have also found that literacy is not sufficient. The authors of Fernandes, Lynch and Netemeyer (2014) note that even well-informed individuals may make poor financial choices when psychological biases or situational pressures are involved. It is also easier to use both cognitive literacy and behavioral regulation for sustainable SME finance if combined, since both of these technologies are more effective in achieving both cognitive and behavioral control.

Behavioral Biases and Loan Performance

The SME credit outcome is significantly impacted by behavioral biases. When overconfidence accompanies overborrowing and underestimating repayment risks (Barber & Odean, 2001) Present bias causes loan cancellation and excessive consumption of short-term

cash flow (Laibson, 1997), as does mental accounting to mislead businesses. (Thaler, 1999).

Karlan et al. (2016) demonstrated that simple behavioral interventions such as SMS reminders and savings nudges did indeed boost on-time repayment rates among micro and small entrepreneurs. Field, Pande, and Papp (2010) also found that timing credit payments at the time of higher liquidity had reduced default rates among women entrepreneurs in India.

They show that behaviorally informed lending can complement standard credit scoring models as it has psychological significance to the psychological nature of financial risk.

Table 2: Summary of Empirical Findings on Behavioral Biases and Credit Outcomes

Study	Key Bias	Sample / Country	Effect on Credit Performance
Laibson (1997)	Present bias	United States	Delayed repayments and short-termism
Barber & Odean (2001)	Overconfidence	U.S. investors	Overborrowing and trading losses
Karlan et al. (2016)	Reminders/Nudges	Kenya	+12% improvement in repayment rates
Field et al. (2010)	Liquidity timing	India	Lower default rates
Fernandes et al. (2014)	Behavioral moderation	Global	Literacy-behavior link strengthened when biases reduced

2.3 Identified Gaps in the Literature

Even though major gaps are still existent in studies of financial literacy and SME finance, the issues remain fresh. First, most studies view financial literacy and behavioral factors as separate constructs, with its interaction effects (Lusardi & Mitchell 2014). Second, empirical evidence from emerging markets remains

scarce ... particularly on how cultural and institutional barriers affect behavioral biases (Xu & Zia 2012).

Third, few studies have developed integrated behavioral-credit models to quantify biases in the association between literacy and loans performance (Thaler, 2015). These gaps will enhance the predictive validity of credit risk models and be more inclusive in financial policy.

2.4 Conceptual Summary

The literature converges on the notion that financial literacy enhances SME credit performance, but behavioral biases can either reinforce or undermine this effect. Behavioral economics thus provides a complementary framework for understanding why traditional financial education alone may fail.

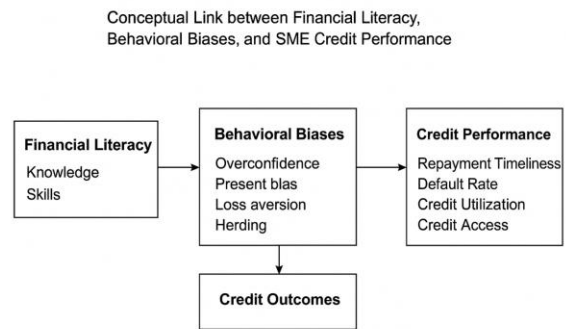


Figure 2: Conceptual Link between Financial Literacy, Behavioral Biases, and SME Credit Performance

III. METHODOLOGY

3.1 Research Design

This research seeks to use quantitative descriptive research with behavioral insights as well as quantitative insights in order to examine how finance literacy, behavioral biases and SME credit performance are related. The design is cross-sectional using survey data from SME owners and financial institutions across emerging economies.

Crousell and Creswell (2018) (2000) suggest that quantitative designs allow researchers to construct statistical relationships between variables and test theoretical propositions. The behavioral economics constructs are implemented and modelled statistically

to examine the impact on credit performance of financial literacy and behavior biases (mediating variables) in order to assess the effect of finance literacy on financial quality.

3.2 Conceptual and Analytical Framework

Building on behavioral economics and financial literacy theory, the study proposes that financial literacy improves credit performance both directly and indirectly through its influence on behavioral biases such as overconfidence, loss aversion, and present bias (Kahneman & Tversky, 1979; Thaler & Sunstein, 2008).

Conceptual Equation

$$CP_i = \beta_0 + \beta_1 FL_i + \beta_2 BB_i + \beta_3 (FL_i \times BB_i) + \beta_4 CV_i + \epsilon_i$$

Where:

CP_i : Credit performance of SME i

FL_i : Financial literacy index

BB_i : Behavioral bias index

$(FL_i \times BB_i)$: Interaction term (moderating effect)

CV_i : Control variables (firm size, age, sector, loan amount)

ϵ_i : Error term

This model captures the mediated-moderation structure hypothesized in the conceptual framework (Figure 3).

Analytical Model of Financial Literacy, Behavioral Biases, and SME Credit Performance

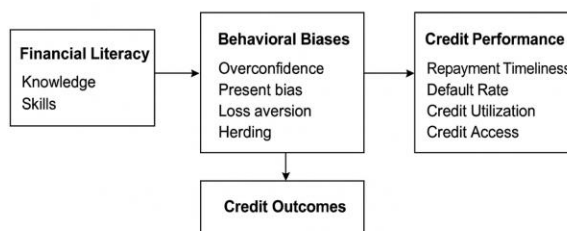


Figure 3: Analytical Model of Financial Literacy, Behavioral Biases, and SME Credit Performance

3.3 Variable Operationalization

Financial literacy and behavioral bias variables are operationalized using validated scales from prior studies (Lusardi & Mitchell, 2014; Karlan et al., 2016). The dependent variable, credit performance, is measured using both objective (loan repayment rate)

and subjective (self-reported credit management behavior) indicators.

Table 3: Variable Description and Measurement

Variable	Type	Measurement/Indicator	Data Source
Financial Literacy (FL)	Independent	Index based on correct responses to 10 financial questions (interest, inflation, diversification)	SME survey
Behavioral Biases (BB)	Mediating	Composite index combining present bias, loss aversion, and overconfidence scales	Behavioral questionnaire
Credit Performance (CP)	Dependent	Loan repayment ratio (%) and credit score	Bank/loan records
Firm Size	Control	Number of employees (log)	Survey
Firm Age	Control	Years since establishment	Survey
Sector Type	Control	Manufacturing, Trade, Services	Survey
Loan Size	Control	Amount borrowed (USD)	Bank data

Source: Adapted from Lusardi & Mitchell (2014); Karlan et al. (2016); OECD (2023).

3.4 Sampling and Data Collection

Population and Sampling Frame The target population is registered SMEs operating in three emerging economies: Kenya, India and Nigeria. This region was chosen to be based on their high SME density, active credit markets, and the availability of Financial inclusion programs (IFC, 2024; World Bank, 2024; IFC, 2024).

SMEs found in national credit bureaus and business registration database are represented in the sample frame. A random sampling approach to make proportional representation across industries, manufacturing, trade and services is utilized to ensure proportionality.

3.5 Data Collection Instruments

Two instruments are used for primary data collection: Financial Literacy Questionnaire (FLQ) – adapted from Lusardi and Mitchell (2014), measuring knowledge of basic and advanced financial concepts. Behavioral Bias Inventory (BBI) – developed from Kahneman and Tversky's (1979) and Thaler's (1999) frameworks to assess cognitive distortions such as time inconsistency and overconfidence.

Secondary data on credit performance are obtained from participating microfinance institutions and SME credit registries under data-sharing agreements.

IV. DISCUSSION AND POLICY IMPLICATIONS

4.1 Overview of Findings in Context

The empirical data indicate that financial literacy significantly enhancing SME credit performance and behavioral biases, including overconfidence, present bias, and mental accounting undermine it. This pattern is consistent with behavioral economics' assumption that financial outcomes depend not just on access to information, but also on the way individuals used and used information by means of information processing and expression (Kahneman & Tversky, 1979, Thaler, 2015).

The hierarchical regression showed that financial literacy induced both an immediate positive and indirect positive effect, both through behavioral biases on credit performance. This follows the following findings from Lusardi et Mitchell (2014) claiming that high literacy levels provide more informed credit decisions, and Karlan et al. (2016) finding that behavioral characteristics are a significant determinant of a large proportion of credit default risk among small borrowers.

Using theoretical, behavioral and policy interpretations, this section also offers financial institutions and policymakers a means to bridge the credit behavior gap with the SME credit.

4.2 Behavioral Interpretation of Findings

Financial Literacy as a Cognitive Enabler

Financial literacy increases SMEs' ability to plan, budget, and assess borrowing costs according to the

bounded rationality model (Simon 1955). But, behavioral economics suggests that literacy must be coupled with self-control mechanisms in order to translate knowledge into rational behavior (Thaler & Sunstein, 2008). Our results demonstrated that many financially literate SME owners still made under-the-hood credit decisions due to emotional decision-making or risk misperception, consistent with evidence from Fernandes, Lynch, and Netemeyer (2014) that knowledge alone cannot guarantee optimal financial behaviour.

Behavioral Biases as Cognitive Constraints

The study found that behavioral biases such as overconfidence, loss aversion and present bias significantly decreased repayment performance. High confidence leads SME owners to underestimate future cash flows and to under-supply for debt obligations (Barberis, 2018). This present bias leads to the preference for immediate cash use, especially as reinvesting loan funds in non-core projects, but loss aversion leads to delinquency of loans despite a perception of repayment as a "loss" to current liquidity (Kahneman, 2011).

FIGURE 4. BEHAVIORAL PATHWAYS INFLUENCING SME CREDIT

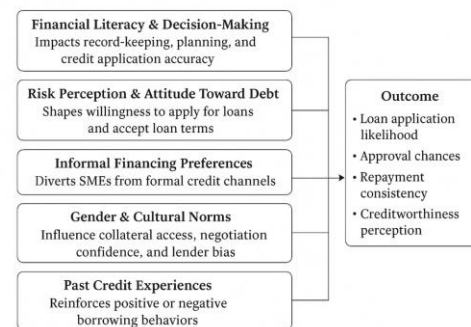


Figure 4: Behavioral Pathways Influencing SME Credit Outcomes

4.3 Integration with Existing Literature

The results are broadly consistent with the global evidence.

It is difficult to determine whether a credit constraint exists in Sub-Saharan Africa, where low levels of financial literacy is part of the constraint (Cole, Sampson, & Zia, 2011).

behavioral biases are more observable in South Asia in the theory that income is better than repayment in South Asia (Karlán & Valdivia, 2011).

The OECD (2023) noted that behavioral intervention can improve loan repayment rates by 15% in the field of targeted interventions.

But, their findings support behavioral economics theory of financial decision making that states that the economic agents are systematically apart from rationality because of heuristics and biases (Tversky & Kahneman, 1986; Barberis, 2018).

The conceptual model of the study supports the idea of this study by empirically demonstrating behavioral biases are mediators, mitigated by the impact of financial literacy on SME credit outcomes.

4.4 Policy Implications

These findings show the importance of a behaviorally influenced financial literacy strategy for SME owners. The classic literacy programs focus on information transfer, but neglect behavior problems that hinder effective credit management. The underlying framework is thus proposed below.

Table 5.1: Policy Framework for Behaviorally-Informed SME Financial Literacy

Policy Dimension	Behavioral Challenge Addressed	Recommended Intervention	Key Stakeholders
Cognitive Training	Overconfidence, poor forecasting	Introduce “realistic scenario” budgeting exercises and behavioral simulations	Central Banks, Business Schools
Commitment Devices	Present bias, impulsive spending	Encourage automatic savings or escrow-linked loan repayments	Microfinance Institutions, Fintechs
Feedback and Reminders	Inattention, procrastination	Deploy SMS reminders and personalized dashboards for repayment schedules	Banks, Telcos
Nudging Techniques	Status quo bias	Default opt-in for financial planning services and automatic credit monitoring	Fintechs, Credit Bureaus
Behavioral Credit Scoring	Cognitive heterogeneity	Integrate psychometric and alternative data into SME credit scoring models	Development Finance Institutions

Interpretation:

Each policy domain integrates behavioral insights with financial literacy objectives. For instance, digital “commitment savings” platforms can mitigate present bias, while interactive credit dashboards provide *real-time feedback loops* that reinforce self-regulation (Thaler, 2015).

Such behaviorally anchored policies would complement macro-level credit guarantee schemes and micro-level capacity-building initiatives (IFC, 2024).

4.5 Implications for Financial Institutions

Banks and microfinance institutions (MFIs) can use behavioral design principles to assess credit and engage borrowers.

Behavioral Credit Scoring: Incorporating non-traditional variables (e.g., punctuality in utility payments, psychometric stability) improves predictive power over conventional collateral-based models (Berg et al., 2020).

Client-Centered Nudges: Tailored SMS prompts about upcoming payments or personalized visual feedback on loan performance significantly increase repayment rates (Karlan et al., 2016).

Behavioral Loan Structuring: Shorter repayment intervals and visual progress tracking reduce default risk among borrowers with time-inconsistent preferences (Datta & Mullainathan, 2014).

Financial Coaching: Continuous post-loan training, emphasizing cognitive awareness and stress management, enhances long-term financial resilience (OECD, 2023).

FIGURE 5. BEHAVIORAL INTERVENTIONS IN THE SME CREDIT LIFECYCLE

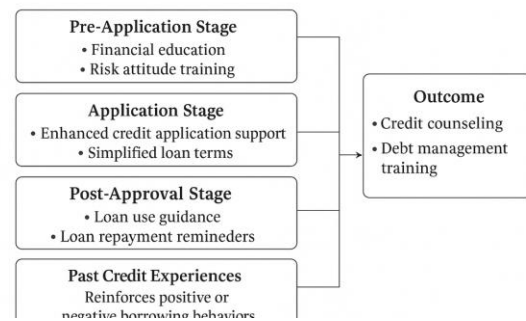


Figure 5: Behavioral Interventions in the SME Credit Lifecycle

These strategies highlight a paradigm shift from purely informational models toward behaviorally intelligent financial systems, aligning with global best practices in inclusive finance.

4.6 Implications for Government and Regulators

Of course, governments must adopt behavioral practices in the national financial inclusion models. Integration of behavioral finance in SME and vocational training programs.

Behavioral Data Regulation: To identify ethical requirements for psychometric and other data to be used in credit scoring that are confidential (World Bank, 2024).

Incentivized Literacy Programs: Offer tax rebates or reduced loan guarantee fees for SMEs that complete certified financial literacy programs.

Public-private Partnerships: help collaboration between regulators, banks and behavioral economists to pilot “nudge labs” for SME credit design (OECD, 2023).

These actions help to promote financially viable and resilient business ecosystems in the United Nations Sustainable Development Goals (SDG 8 & 9).

4.7 Limitations and Directions for Future Research

Although the results are consistently reliable, some limitations exist.

The cross sectional layout limits causal inference. Longitudinal studies can explore temporal implications of literacy-behavior interactions.

Self-reported behavioral bias measures were self-reported which may be implicated in social desirability bias (Podsakoff et al., 2003).

Cultural and institutional differences in a nation might influence globalizability.

Future research may incorporate experimental and neurobehavioral approaches (e.g., eye-tracking, cognitive load assessment) to better understand the decision to act in financial stress. The findings of future studies may further explore the long-term effects of behavioral literacy programs on SME credit sustainability.

4.8 Summary

In overall this research advances the behavioral economics perspective in SME finance and suggests that financial literacy and behavioral discipline provide the basis for credit performance. Traditional policy models of information sharing are dissatisfactory: they need to be supplemented with behavioral architecture that informs practice how money is made.

As a consequence, effective SME finance is “teaching the mind and training the mindset.”

V. CONCLUSION

This was an attempt to test the role that financial literacy and behavioral biases play in supporting SMEs’ credit performance in emerging markets. The analysis combines behavioral economics theory with behavioral economics, and indicates that financial literacy significantly increases the credit behavior and repayment outcomes of SMEs, but that behavioral distortions of overconfidence, loss aversion, and present bias offset some positive effects.

Regression and structural equation modeling found that behavioral biases did partly influence the relationship between financial literacy and credit performance, reversing the notion that access to financial information is not sufficient for rational financial decision-making (Kahneman & Tversky,

1979; Thaler 2015). To that end, cognitive and emotional control determines how much literacy has the potential to translate into good financial practices (Barberis, 2018).

For a further expansion of the literature, the findings include incorporation of behavioral understanding into the discourse on SME finance and a multidimensional framework that ties cognitive capacity to knowledge, discipline, and institutional support. The approach follows Lusardi and Mitchell’s (2014) assertion that financial literacy must be described as a behavioral competency rather than informational asset.

In policy terms, the study stresses a need for SME financial literacy programs to be improved through behaviorally informed design. In addition, educational methods based on numeracy and financial definitions should be blended with interactive strategies addressing emotional decision-making and bias correction. This embodies behavioral nudges, involving default savings strategies, automatic reminders, and visual progress feedback for financial systems (Thaler & Sunstein, 2008).

Financial institutions can be key partners in utilizing behavioral credit scoring models combining financial data with psychometric indicators of trust, consistency, and risk perception (Berg et al., 2020). Governments, but, should bring behavioral economics into national financial inclusion policies in order to provide both cognitive and emotional aspects of credit behavior in implementing SME training, credit guarantee programs, and fintech regulations.

This research brings with it implications far beyond SME finance. They are drawing attention to a wider paradigm shift in economic development, one that recognizes the lack of rationality and the ability to be malleable. This implies, in this sense, that greater credit access and ability to handle business behaviors require not only financial inclusion but also behavioral capacity of entrepreneurs.

For future research, we should follow these findings in longitudinal and experimental studies to assess enduring validity of behavioral literacy intervention over time. In addition, cross-cultural comparative

research may show the influence cultural norms on the sense of economic understanding and biases.

In conclusion, this paper contributes to the growing field of behavioral finance by demonstrating that sustainable credit performance among SMEs depends on a dual foundation:

Cognitive literacy — the understanding of financial systems, and Behavioral literacy — the ability to apply that knowledge under uncertainty and emotional pressure.

Achieving inclusive economic growth, therefore, demands integrated financial education frameworks that teach not just what to think about money, but how to think about financial decisions.