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BEHAVIORAL FINANCE IN THE INDONESIAN MSME SECTOR: A SYSTEMATIC LITERATURE REVIEW

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ABSTRAK

Penelitian ini mengkaji behavioral finance pada sektor UMKM Indonesia yang dievaluasi menggunakan SLR PRISMA 2020. Dari 1.847 artikel yang ditemukan di Web of Science, Google Scholar, ProQuest, SINTA/Garuda, Scopus, serta sumber penelitian ilmiah lainnya. 42 publikasi yang ditinjau oleh rekan sejawat memenuhi standar MMAT dan CASP. Tinjauan ini mengidentifikasi empat konstruksi perilaku keuangan yang dominan di sektor UMKM Indonesia: bias terlalu percaya diri, keengganan terhadap kerugian, akuntansi mental, dan perilaku kelompok. Bias kognitif ini secara signifikan mempengaruhi pengambilan keputusan keuangan, sehingga mengakibatkan alokasi modal yang tidak optimal, terbatasnya adopsi instrumen keuangan formal, dan terhambatnya pertumbuhan bisnis. Literasi keuangan digital dan nilai-nilai keuangan Islam berfungsi sebagai moderator kontekstual yang unik di Indonesia. Tinjauan ini memberikan tiga kontribusi utama: menyajikan sintesis pertama literatur keuangan perilaku UMKM Indonesia berbasis PRISMA (2019–2024), mengusulkan kerangka konseptual integratif, dan merumuskan agenda penelitian empiris masa depan.

Kata Kunci: Keuangan Perilaku; UMKM; Indonesia; Tinjauan Pustaka Sistematis; Pengambilan Keputusan Keuangan.

ABSTRACT

This study examines behavioral finance in the Indonesian MSME sector, evaluated using a PRISMA 2020-based SLR. 1,847 articles identified from Web of Science, Google Scholar, ProQuest, SINTA/Garuda, Scopus, and other scientific research sources. 42 peer-reviewed publications satisfied the standards for MMAT and CASP. The review identifies four dominant behavioral finance constructs in the Indonesian MSME sector: overconfidence bias, loss aversion, mental accounting, and herd behavior. These cognitive biases significantly influence financial decision-making, resulting in suboptimal capital allocation, limited adoption of formal financial instruments, and constrained business growth. Digital financial literacy and Islamic financial values operate as contextual moderators unique to the Indonesian setting. This review provides three main contributions: presenting the first PRISMA-based synthesis of Indonesian MSME behavioral finance literature (2019–2024), proposing an integrative conceptual framework, and outlining a future empirical research agenda.

Keywords: Behavioral Finance; MSME; Indonesia; Systematic Literature Review; Financial Decision-Making.

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1. Introduction

Indonesia relies heavily on micro, small, and medium-sized enterprises (MSMEs). Businesses in this category account for 61.97% of gross domestic product (GDP). In addition, they provide jobs to more than 97% of the workforce in the country (Ministry of Cooperatives and SMEs, 2022). In spite of such macroeconomic significance, MSMEs consistently encounter structural obstacles when it comes to financial management, access to formal credit, and the achievement of sustainable business growth. Traditional economic models, which rely on the idea of perfect rationality, have proven insufficient to explain the real financial actions of MSME owner-managers, as they frequently deviate from utility-maximizing norms in predictable and impactful ways.

Behavioral finance combines elements from cognitive psychology and economics. Its purpose is to explain how psychological biases and heuristics systematically cause individual and organizational decision-making to diverge from traditional rationality assumptions (Thaler & Sunstein, 2021). In MSMEs, financial decisions are usually made by a single owner-manager. Cognitive bias may therefore affect business sustainability and development of small and medium-sized firms because they lack corporate governance checks and balances. Research by Risman et al. (2023) indicates that financial inclusion, technology adoption, and behavioral finance remain key challenges for MSMEs, which highlights the need for a thorough literature review.

Behavioral finance has made progress beyond Kahneman and Tversky's (1979) work on prospect theory and Simon's (1955) bounded rationality theory. Nevertheless, empirical studies devoted specifically to the actors of MSME in developing economies, especially in Indonesia, remain scattered across various journals, databases, and methodological traditions. Indonesia has its own particular case with a substantial informal economy, significant Javanese and Islamic cultural influences, rapid advancement in digital financial inclusion driven by fintech, and a geographically expansive territory with varied regulatory regimes (Rahayu et al., 2023). These characteristics may give rise to behavioral characteristics which are yet to be completely embodied by research conducted in developed market settings or global behavioral finance theories that do not account for collectivist and Islamic-majority settings.

This study synthesizes and critically analyzes the literature on behavioral finance in Indonesian MSMEs. It is designed to be clear, transparent, and methodologically sound, following the PRISMA 2020 guidelines as outlined by Page et al. (2021). The study is divided into five sections: exploring the theoretical landscape, examining literature on cognitive bias, describing the methodologies used in previous literature, exploring the gaps in the literature, and developing an integrative conceptual model.

Section 2 provides the theoretical underpinning, Section 3 describes the systematic literature review, Section 4 presents the findings, and Section 5 discusses the implications, including the conceptual framework. Section 6 concludes with a proposed research agenda.

2. Theoretical Framework

2.1. Theories of Loss Aversion and Prospect

Kahneman and Tversky (1979) introduced prospect theory, which became cumulative prospect theory in 1992. Prospect theory argues that results are determined by reference points rather than wealth. The theory highlights two important asymmetries. First, loss aversion suggests that losses affect people more than benefits. Second, individuals tend to avoid risk when dealing with gains but to take risks when facing losses. In the context of MSMEs, loss aversion is reflected in the consistent hesitation of owner-managers to adopt new business strategies, obtain formal financial assistance (which may be psychologically viewed as losses), or discontinue poorly performing business areas even when it is economically rational to do so.

Addinpujoartanto and Darmawan (2020) proved that loss aversion substantially impacts Indonesian investors financial decision-making. Nur Aini and Lutfi (2019) echoed the same sentiment, indicating that loss aversion impacts investment decisions in the Indonesian financial environment. These findings prove the significance of prospect theory in understanding the financial behavior of not only individual investors but also within owner-managed MSMEs, where personal and business financial decisions are often closely intertwined.

2.2 Bounded Rationality Theory

The concept of bounded rationality proposed by Simon (1955) overturns the neoclassical rationality assumption of perfect rationality. It suggests that decision-makers employ satisficing behavior due to cognitive constraints, incomplete information, and time constraints, as they choose options that are satisfactory rather than optimal. The topic of bounded rationality is particularly relevant to MSMEs, where owner-managers often lack access to formal financial advice, comprehensive market information, and standardized accounting systems. Such structural information asymmetry increases reliance on cognitive shortcuts (heuristics), which, although cost-effective in certain situations, can lead to systematic and predictable biases.

Risman et al. (2023) found that digital financial technology may help mitigate bounded rationality by providing MSME owners with organized financial information at a much lower mental cost, which agrees with Simon's (1978) later research on procedural rationality. Huda and Risman (2024) further demonstrated that fintech adoption positively mediates the relationship between financial inclusion and behavioral finance results in Indonesian MSMEs. These findings suggest that technological mediation can structurally widen the bounded rationality perspective.

2.3 Overconfidence Bias

Overconfidence bias occurs when individuals overestimates their own knowledge, competence, or accuracy in judgment. It is a common and substantial bias in entrepreneurial and behavioral finance contexts (Camerer & Lovallo, 1999). In MSMEs, overconfident owner-managers typically underestimate the possibility of negative outcomes, overinvest in low-return projects, and rely excessively on debt financing, which increases the likelihood of financial problems and business failure. Managerial checks against overconfidence are present in larger organizations because of board oversight and institutional governance. However, in MSMEs, where ownership and management are typically unified, such checks are largely absent.

Addinpujoartanto and Darmawan (2020) found that overconfidence significantly and positively affects investment decisions in Indonesia. Firmansyah (2023) confirmed that overconfidence bias affects capital market investment decisions significantly and identified that financial literacy as a crucial moderating factor. Furthermore, Risman (2024) expanded on this line of research to the MSME context, demonstrating that management overconfidence affects Indonesian MSMEs' financial choices, with financial literacy again acting as a key moderating variable.

2.4 Mental Accounting

Mental accounting refers to the inclination to "cushion" money depending on its origin or planned use rather than treating it equally. The concept was first proposed by Thaler (1980) and further explored in his work (1999). In the case of MSMEs, mental accounting is most evident when business and personal finances are either combined or rigidly separated, when revenues are retained under certain psychological motives, and when unexpected income is handled differently from the earned income. Such thinking patterns confuse the process of recognizing costs, judgment of profitability, and decision-making on investment.

Qisthon et al. (2021) showed that mental accounting greatly affects tax compliance among Indonesian MSMEs. They found that owner-managers who maintain a clearer separation between personal and business finances are more likely to comply with the tax obligations. Pasek (2024) found that mental accounting influences Indonesian MSMEs' financial decisions, underscoring the importance of the concept in the financial behavior of MSMEs.

2.5 Herd Behavior and Social Influence

Herd behavior refers to the tendency of individuals to follow the investment and financial decisions of a larger reference group, often without performing independent analysis or seeking their own information. Among interconnected MSME communities in Indonesia—where social institutions such as business associations, cooperative groups, and kinship ties have a strong influence—group norms and peer expectations can have a substantial influence on individual financial choices, particularly in the suburban and rural settings. This behaviour is theoretically supported by social capital theory (Coleman, 1988; Putnam, 2000), which assumes that being highly integrated into the social networks helps not only facilitate the circulation of the information but also restricts the decisions of individuals due to normative pressure.

Addinpujoartanto and Darmawan (2020) found that herding bias influences Indonesians' investment choices. Similarly, Rona and Sinarwati (2021) reported that herding behavior affects financial decision-making. In a crisis such as the COVID-19 pandemic, Yanti and Endri (2024) demonstrated that such behavioral biases, including herding, become more pronounced due to increased environmental uncertainty.

2.6 Digital Financial Literacy as a Contextual Moderator

One contextual aspect in Indonesia is the rapid growth of digital financial services, including mobile wallets like GoPay, OVO, and DANA, peer-to-peer lending platforms, and digital banking. This development affects the relationship between cognitive biases and financial outcomes. One key corrective mechanism is financial literacy, especially in the digital space, by enhancing access to financial information and improving the accuracy of financial decisions (Lusardi & Mitchell, 2014).

In addition, Indonesians are predominantly Muslims and adhere to the Islamic tenets of finances, which is another special contextual consideration. Financial products that comply with Sharia law, such as *musharakah* (partnership financing) and *mudharabah* (profit sharing), represent an increasing share of MSME financing. These products can work together with psychological biases in distinct ways. Maulani and Risman (2025) affirmed that financial literacy, digital finance, and financial attitudes can be used in the formulation of the behavior of MSMEs under the modern digital age in regard to financial practice. This highlights the multifaceted nature of contextual moderation within the Indonesian setting.

3. Research Method

3.1. Research Design

Page et al. (2021) recommended PRISMA 2020 for this investigation. The choice of the systematic literature review (SLR) method was based on the need to provide a clear, strict, and reproducible summary of the main evidence presented in previous studies. This approach minimizes bias during the selection of studies and enables the development of knowledge where evidence is dispersed (Tranfield et al., 2003). The strategy used is comparable to the behavioral finance of good-quality SLRs (Baker et al., 2020; Zahera & Bansal, 2018).

3.2. Search Strategy and Database Selection

Five electronic databases were used: Scopus, Web of Science (WoS), Google Scholar, ProQuest Business Premium, and the Indonesian Scientific Journal Database (SINTA/Garuda). The PICO model served as the basis for formulating the search queries, adapted for observational studies. The primary Boolean search string consisted of the following: ("behavioral finance" OR "behavioural finance" OR "cognitive bias" OR "prospect theory" OR "overconfidence" OR "loss aversion" OR "mental accounting" OR "herding behavior" OR "herding bias") AND ("MSME" OR "SME" OR "UMKM" OR "small medium enterprise" OR "usaha mikro" OR "small business") AND ("Indonesia").

Additional searches utilized Indonesian-language terms to capture locally published studies indexed in SINTA/Garuda. The searches were conducted between January 2025 and March 2025. All included articles were manually searched in their reference lists to identify additional sources (snowballing). Two researchers conducted the screening and selection procedures, with disagreements resolved through discussion; a third researcher made judgments where required.

3.3. Inclusion/Exclusion Criteria

Table 1. Inclusion/Exclusion Study Selection Criteria

Criterion	Inclusion	Exclusion
Publication Type	Peer-reviewed journal articles	Conference papers, theses, and book chapters
Publication Window	2019–2024	Pre-2019 publications
Language	English or Bahasa Indonesia	All other languages
Topical Relevance	Behavioral finance applied to Indonesian MSME sector	General behavioral finance without Indonesian MSME focus
Methodology	Quantitative, qualitative, mixed-methods, review	Opinion pieces, editorials
Accessibility	Full-text available for retrieval	Abstract-only records
Quality Threshold	MMAT/CASP score ≥ 60%	MMAT/CASP score < 60%

3.4.Selection for PRISMA 2020

As shown in Table 2, the selection of articles followed the PRISMA 2020 flow, which was divided into four stages: identification, screening, eligibility, and inclusion.

Table 2. PRISMA 2020 Flow Diagram — Behavioral Finance in Indonesian MSMEs

Phase	Description
Phase 1: Identification	Deduplication
Scopus: 524 records	644 duplicates removed across databases
Web of Science: 312 records	Unique records retained: 1,203
Google Scholar: 687 records	
ProQuest: 198 records	
SINTA / Garuda: 126 records	
TOTAL: 1,847 records	
Phase 2: Screening	Excluded (n = 987)
Title and abstract screening applied	a. Unrelated to behavioral finance: 512
Records forwarded to eligibility: 216	b. No MSME/Indonesia focus: 341
	c. Outside the 2019–2024 window: 134
Phase 3: Eligibility	Excluded — Full Text (n = 174)
Full-text assessment: 216 articles	a. Insufficient behavioral finance focus: n=89
	b. Weak Indonesian MSME context: n=52
	c. Poor methodological quality: n=21
	d. Full text inaccessible: n=12
Phase 4 — Included ► Final Corpus: 42 Studies (2019–2024)	

3.5.Quality Appraisal

Quantitative studies were reviewed by two researchers using the Mixed Method Appraisal Tool developed by Hong et al. (2018). Qualitative and mixed-methods studies were evaluated using Critical Appraisal Skills Program (CASP). All included studies (n=42) achieved scores above 60% on the respective appraisal tools, which ensured that the synthesized results rely on evidence that is methodologically sound.

3.6.Data Extraction and Synthesis

A standard data extraction format was developed to capture the following information: author(s) and year, journal title and indexing status, study location, sample characteristics, applied theoretical framework, examined behavioral construct(s), research methodology, significant findings, and reported limitations. Narrative synthesis was carried out following Popay et al.'s (2006) structured advice. This was further supplemented by frequency analysis of behavioral constructs and thematic mapping of theoretical frameworks and contextual factors identified across the studies.

4. Results and Discussion

4.1 Results

4.1.1. Characteristics of Included Studies

Among the 42 included articles, 28 appeared in Scopus-indexed journals (66.7%), 9 of in Web of Science journals (21.4%), and 5 of in SINTA-indexed national journals, (11.9%). In terms of methodology, 24 studies employed quantitative approaches (57.1%), 10 used mixed methods (23.8%), 5 adopted qualitative designs (11.9%), and 3 were literature reviews (7.1%.) Geographically, 31 studies were conducted in Java (73.8%), including East Java, Central Java, West Java, DKI Jakarta, and the Special Region of Yogyakarta. Seven studies were conducted in Sumatra (16.7%), while four were conducted in Sulawesi and Kalimantan (9.5%). These findings indicates a high concentration of MSME research activity in Indonesia. Quantitative study samples ranged from 30 to 412 respondents, with a median of 138.

Table 3. Characteristics of Included Studies (n = 42)

Category	Subcategory	N	%
Database Indexing	Scopus	28	66.7%
	Web of Science	9	21.4%
	SINTA	5	11.9%
Methodology	Quantitative	24	57.1%
	Mixed-methods	10	23.8%
	Qualitative	5	11.9%
	Literature Review	3	7.1%
Geographic Focus	Java	31	73.8%
	Sumatra	7	16.7%
	Sulawesi/Kalimantan	4	9.5%

4.1.2. Distribution of Behavioral Finance Constructs

The behavioral construct investigated the most was overconfidence bias, which was identified in 28 out of the 42 studies (66.7%). This was followed by loss aversion (n = 24, 57.1%), mental accounting (n = 21, 50.0%), and herd behaviour (n = 17, 40.5%). Financial literacy was noted to be a moderating or mediating factor in 19 studies (45.2%), while Islamic financial orientation was investigated in 12 studies (28.6%).

Table 4. Frequency Distribution of Behavioral Finance Constructs Across Included Studies

Behavioral Finance Construct	Frequency (n)	Percentage (%)
Overconfidence Bias	28	66.7%
Loss Aversion	24	57.1%
Mental Accounting	21	50.0%
Herd Behavior	17	40.5%
Financial Literacy (moderator/mediator)	19	45.2%
Islamic Finance Orientation	12	28.6%

4.1.3. Overconfidence Bias

The most prevalent behavioral construct in the reveiwed studies is overconfidence bias. Addinpujoartanto and Darmawan (2020) found that overconfidence improves investment decision-making in Indonesia. Some studies observed varying overconfidence levels by gender. Both male and female MSME owners consistently demonstrated higher scores of overconfidence on a regular and frequent basis; however, female MSME owners generally reported lower overconfidence scores than their male counterparts. a pattern that is consistent with the literature of entrepreneurship in the world. Rahayu et al. (2023) found that MSME owners who used integrated accounting applications (apps) showed significantly lower levels of overconfidence compared to those who did not. This implies that structured electronic tools can be used to alleviate overconfidence as they encourage users to work directly with financial data.

4.1.4. Loss Aversion

Loss aversion has been most frequently studied when considering formal credit access decisions. Nur Aini and Lutfi (2019) found that loss aversion directly impacts investment decisions in Indonesia. Furthermore, Addinpujoartanto and Darmawan (2020) revealed that loss aversion significantly impacts individuals' choice of investment destinations. According to prospect theory, MSME actors consistently stayed away from formal credit, even when using credit to finance an investment was expected to yield positive returns, due to concerns about the possibility of repayment failure.

Loss aversion was also observed in the reluctance to discontinue underperforming business lines. This is comparable to the sunk cost fallacy and disposition effect observed in securities markets. Risman et al. (2023) discovered that better financial inclusion, supported by the adoption of fintech, can partially mitigate loss aversion by ensuring that financial information is more accessible and normalizing engagement with formal financial systems. Notably, Islamic financial orientation did not significantly moderate loss aversion in four of the five studies examining this relationship, implying that psychological framing effects that underlie loss aversion may be relatively resistant to religious-cultural effects.

4.1.5. Mental Accounting

Mental accounting bias has been relatively established in MSME sub-sectors, such as food and beverage, retail, handicrafts, and agriculture. The most apparent trend identified in the reviewed studies is the inability to maintain personal and business finances as different entities, resulting in blurred boundaries that systematically distort cost identification and accurate profit determination. Qisthon et al. (2021) revealed that mental accounting is a major influencer of tax compliance among MSMEs, with a positive correlation between the limits of mental accounting and compliance levels. Pasek (2024) further reinforced that the quality of the decision process in Indonesian MSMEs is affected by mental accounting.

Other studies identified a positive aspect of mental accounting; however, owners of MSMEs who specifically set aside certain streams of revenue as business investment funds demonstrated higher rates of reinvestment than those who did not mentally classify revenue in this manner. This indicates that mental accounting interventions, such as automated digital savings tools or structured financial planning tools that reinforce explicit mental categorization, may potentially be used as policy instrumentsto enhance MSME capital formation.

4.1.6. Herd Behavior

Herd behavior has been examined extensively in relation to the usage of new technology, the time of entering a market, and the decision-making related to investments . Addinpujoartanto and Darmawan (2020) demonstrated that herd bias influences investment choices in Indonesia, althought its effect is less pronounced than that of toverconfidence or loss aversion. Rona and Sinarwati (2021) similarly reported that herd bias influences the investment decisions made by Indonesian investors substantially. In the context of MSMEs, Risman et al. (2023) showed that social networks and perceived social norms can modify the manner in which people make financial choices in a group, consistent with predictions from herd behavior theory.

One event that was instrumental in the study of herd behavior was the COVID-19 pandemic (2020-2022). Several studies pointed out that individuals began imitating each other faster, including MSME owners who sought safety during the unpredictable period. However, vulnerability arose, including the lack of diversification of supply chains and overreliance on single solutions, which may increase the risk of failure in the event of disruptions.

4.1.7. The Moderating Reason of Digital Financial Literacy

In 19 of the 42 included studies, digital financial literacy became a key moderator of cognitive bias effects; representing the most frequently identified moderator in the corpus. These studies generally indicate that improving digital financial literacy can help reduce the extent to which cognitive biases influence financial decisions. Digital financial literacy could mitigate the relationship between behavioral biases and MSMEs' financial behavior, as argued by Rahayu et al. (2023). Risman et al. (2023) and Huda and Risman (2024) found that fintech adoption reduces the positive relationship between financial inclusion and behavioral finance outcomes. Maulani and Risman (2025) verified that digital finance, financial literacy, and financial attitudes jointly influence how MSMEs behave financially in the digital age.

The 2022 OJK National Financial Literacy and Inclusion Survey reported that MSMEs had a financial literacy score of 49.6 compared to the national average of 65.4. Such disparity implies that the beneficial effects of digital financial literacy have not yet been distributed across MSMEs evenly, and that the policy interventions considered to address this disparity can lead to significant changes in behavior in the industry.

4.2. Discussion

4.2.1. Proposed Integrative Conceptual Framework

This study proposes an integrative conceptual framework (Figure 1) that views behavioral finance biases as mediating mechanisms between individual antecedents and business-level financial decision results, which are moderated by contextual conditions specific to the Indonesian MSME environment. The framework is developed based on a methodical review of 42 studies, grounded in three theoretical perspectives, and incorporates an Indonesian contextual layer that has not been addressed in previous frameworks.

Prospect theory is the work of Kahneman and Tversky (1979) that provides a microeconomic foundation for understanding loss aversion, reference point effects, and disproportionate probability weighting that may lead to irrational decision-making in finance. The key propositions of the theory were used to explain and predict the MSME financial decisions, such as reluctance to exit, credit aversion, and reliance on certainty equivalents.

The second foundation is bounded rationality theory (Simon, 1955), which explains how the conditions are formed and sustained by structural information asymmetries and cognitive limitations. Under such circumstances, MSME owners rely on heuristic decision-making, in spite of its suboptimal nature. Bounded rationality theory explains the opportunity of digital tools to expand the effective rationality range in the MSME environment and the existence of biases.

The third theory under examination is social capital theory (Coleman,1988; Putnam, 2000), which provides the macro-level process by which the collective norms, community trust and social network embeddedness can impart and multiply individual behavioral disposition. This aspect is a particular salience of the collectivist Indonesian culture.

The antecedent layer of the framework comprises several components: socio-cultural context (Islamic values, collectivism, social network density, regional identity), owner characteristics (gender, age, business experience, educational attainment), business traits (size, sector, formality status, firm age), and information environment (financial advisory availability, access to market data). These antecedents forecast the magnitude and the precise structure of the cognitive biases manifested by MSME owner-managers. The bias layer then moderates the correlation between antecedents and the results of the financial decision. These outcomes include investment and capital allocation quality, credit access and financing behavior, financial reporting quality, and business growth and long-run sustainability in the end. The moderation layer conditions the direction and strength of the bias outcome relationship. This layer is made up of Islamic finance orientation, digital financial literacy, social capital and networks, and the institutional environment.

ANTECEDENTS		BEHAVIORAL FINANCE CONSTRUCTS		FINANCIAL DECISION OUTCOMES	MODERATORS
OWNER DEMOGRAPHICS Age · Gender Education · Experience	→	**OVERCONFIDENCE BIAS** Overestimation of skills Underestimation of risk	→	**CREDIT ACCESS & FINANCING** Formal credit adoption Debt aversion behavior	**DIGITAL FINANCIAL LITERACY** Fintech adoption Accounting app usage
BUSINESS CHARACTERISTICS Sector · Size · Age Formal vs. Informal	→	**LOSS AVERSION** λ = 2.1 (Prospect Theory) Credit avoidance · Exit delay	→	**INVESTMENT & CAPITAL USE** Capital allocation quality Inventory management	**INSTITUTIONAL ENVIRONMENT** OJK regulations Banking penetration
SOCIO-CULTURAL CONTEXT Collectivism · Islamic values Network density · Region	→	**MENTAL ACCOUNTING** Mixing of personal and business funds Earmarking and labelling effects	→	**FINANCIAL REPORTING** Accounting separation Record-keeping quality	**ISLAMIC FINANCE ORIENTATION** Sharia compliance *Musharakah* · *Mudharabah*
INFORMATION ENVIRONMENT Market data access Financial advisory	→	**HERDING BEHAVIOR** Peer group mimicry Social norm conformity	→	**BUSINESS GROWTH** Revenue and profitability Long-term sustainability	**SOCIAL CAPITAL & NETWORKS** Community norms Association membership

THEORETICAL PILLARS

PROSPECT THEORY (Kahneman & Tversky, 1979)	**BOUNDED RATIONALITY** (Simon, 1955)	**SOCIAL CAPITAL THEORY** (Coleman, 1988; Putnam, 2000)
Loss aversion · Reference-point framing Probability weighting · Risk attitude asymmetry	Cognitive constraints · Satisficing behavior Heuristic decision-making · Info asymmetry	Network embeddedness · Trust and norms Collective action · Information diffusion

Figure 1. Integrative Conceptual Framework: Behavioral Finance in Indonesian MSMEs

4.2.2 Policy and Practitioner Implications

This review's findings have several key implications for policy and practice. The evidence suggests that incentive-based programs implemented by regulators, especially Bank Indonesia and the Financial Services Authority (*Otoritas Jasa Keuangan* or OJK) such as grant schemes, tax relief, subsidized credit might be insufficient to improve MSME financial behavior if the cognitive biases are not addressed concurrently. Behavioral "nudge" interventions, like automatic savings defaults in digital wallets, community-based financial education programs based on existing social networks, and simplified and cognitively accessible loan application processes, are more likely to produce effective outcomes,

For financial institutions, the review highlights the significance of designing credit products and application procedures that are evidently sensitive to overconfidence and loss aversion. The perceived psychological cost of formal borrowing can be reduced through milestone-based credit structure, visual repayment simulation, and plain-language risk disclosure, which address credit avoidance that arises due to loss aversion. Although there is limited evidence that Islamic contexts can reduce cognitive biases, Sharia-compliant tools may offer an alternative pathway to access religiously oriented MSME segments.

For organizations that deliver training and development in MSMEs, including but not restricted to university-based business incubators, the Chamber of Commerce (*Kamar Dagang dan Industri Indonesia* or KADIN), and HIPMI, the inclusion of behavioral finance literacy into the training schedule can contribute to increased effectiveness of financial education programs in practice. Structured debiasing exercises that target mental accounting boundaries, loss aversion in credit decisions and overconfidence in business predictions represent cost-effective, high-impact additions to the current curricula.

This assessment highlights four key research priorities. First, MSME research remains heavily concentrated in Java, particularly in DKI Jakarta, Central Java, and East Java, while regions such as Kalimantan, Papua, Nusa Tenggara, and Maluku remain poorly researched. Given the high variation in cultural, infrastructural, and economic conditions across the Indonesian archipelago, geographically heterogeneous research is vital to develop generalizable policy recommendations.

Second, the present body of research is characterized by a lack of longitudinal research designs. Cross-sectional survey design methods were commonly employed in all quantitative studies identified in this review, which restrict causal inferences and provide limited insight into the way cognitive biases evolve during the MSME business life cycle. Longitudinal panel studies that monitor bias expression, financial decision quality, and business outcome over a period of three to five years would significantly enhance causal understanding.

Third, the connection between Islamic and behavioral finance is yet to be comprehensively understood. Although 12 studies consider Islamic financial orientation, few actively tested its moderating effect using methodological approaches. Considering Indonesia's demographic and financial landscape, further theoretical literature elaborating on the interaction of Islamic financial ethics and psychological bias, as well as experimentation, is warranted.

Fourth, experimental and quasi-experimental designs are not prevalent in the literature of the Indonesian MSME behavioral finance. Causal evidence derived from experiments such as randomized controlled trials and regression discontinuity designs is necessary to support holistic evidence-based policies, including nudges, default effects, commitment devices, and financial coaching programs.

5. Conclusion, Implications, and Limitations

This study systematically synthesizes 42 peer-reviewed articles on behavioral finance in Indonesian MSMEs published between 2019 and 2024. The review provides strong evidence that cognitive biases are pervasive and largely impact financial decision-making in this industry. The most prominent biases identified are overconfidence, loss aversion, mental accounting, and herd behaviour. The Indonesian context is distinctive, characterized by collectivist cultural norms, Islamic financial principles, rapid digital financial integration, and substantial development gap across a geographically dispersed archipelago. The environment shapes how these biases manifest and influence financial outcomes in ways that are not fully explained by existing global behavioral finance theories.

The proposed integrative framework incorporates various aspects of prospect theory, bounded rationality theory, and social capital theory, which is tailored to the Indonesian context. The framework offers a basis for a theoretical framework for future research, which will be informed by empirical studies. The framework is useful as it organizes existing data, identifies relationships that have not been well researched, and generates hypotheses for longitudinal and experimental research designs.

This review features three contributions. First, it provides the first PRISMA 2020-compliant summary of the highly fragmented and fast-growing behavioral finance literature on Indonesian MSME. Second, it determines significant methodological, geographic, and theoretical shortcomings. Third, it enhances an integrative approach that contextualizes behavioral finance theory within Indonesia's distinct institutional and cultural context of MSMEs. Addressing these gaps through longitudinal, experimental, and geographically diverse research will establish stronger evidence to inform MSME development policies in Indonesia and other developing economies.

This study has several limitations that must be acknowledged. First, the review is limited to articles published between 2019 and 2024, which may exclude relevant earlier foundational studies on behavioral finance in MSMEs. Second, the geographic concentration of included studies in Java (73.8%) limits the generalizability of findings to other regions of Indonesia. Third, as a systematic literature review, this study cannot establish causal relationships between cognitive biases and financial outcomes; such inferences require longitudinal or experimental designs. Fourth, publication bias may affect the conclusions, as studies with significant findings are more likely to be published and indexed in the selected databases. Future research should address these limitations by conducting geographically diverse, longitudinal, and experimental studies across the Indonesian archipelago.

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Conflict of Interest Statement

The authors declare no conflict of interest regarding the research, authorship, or publication of this article.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions

Komang Agus Rudi Indra Laksmana: Conceptualization, methodology, data curation, formal analysis, writing – original draft, writing – review & editing.

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