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A SYSTEMATIC LITERATURE REVIEW OF DEBT MUTUAL FUNDS: A TCCM FRAMEWORK-BASED ANALYSIS

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ABSTRACT

***Purpose**: This study conducts a systematic literature review (SLR) of research on debt mutual funds, utilizing the Theory, Context, Characteristics, and Methodology (TCCM) framework to map the intellectual structure of the field, identify research gaps, and suggest future directions.*

***Design/Methodology/Approach**: A structured SLR was performed by analysing 350 peer-reviewed articles from the Scopus database (1908–2024). The TCCM framework was employed to synthesize the literature based on its theoretical foundations, contextual settings (geographical and temporal), key fund characteristics, and methodological approaches.*

***Findings**: The review identifies a dominance of classical financial theories (e.g., MPT, CAPM) in foundational research, with a recent shift towards behavioral and regulatory theories. The contextual analysis reveals a significant geographical bias, with a majority of studies focused on developed markets (USA, Europe), while emerging economies (e.g., Indonesia, Bangladesh) remain under-explored. Key characteristics influencing fund performance include expense ratios, credit ratings, and fund age. Methodologically, the field is dominated by quantitative techniques, with a noted scarcity of panel data econometrics and advanced machine learning applications, leading to potential omitted variable biases.*

***Originality/Value:** This is the first comprehensive SLR on debt mutual funds to apply the TCCM framework. It provides a holistic, structured overview of the field, offering valuable insights for academics, practitioners, and policymakers. The study proposes a robust future research agenda focused on emerging markets, methodological innovation, and the integration of contemporary theories like ESG and fintech.*

***Keywords:** Debt Mutual Funds, Systematic Literature Review (SLR), TCCM Framework*

***Article Type:** Literature review*

1.1 INTRODUCTION

Debt mutual funds play a vital role in global financial systems, providing investors with exposure to fixed-income securities while balancing risk and return profiles. Their attractiveness stems from their relative stability compared to equity funds, liquidity advantages over direct bond investments, and their potential to diversify portfolios. With the proliferation of investment products, debt funds have become central to retail and institutional investors alike. Despite their growing importance, the academic and professional literature on debt mutual funds remains fragmented, lacking a structured synthesis that integrates theory, context, characteristics, and methodology.

This study addresses this gap by conducting a Systematic Literature Review (SLR) following the TCCM (Theory, Context, Characteristics, and Methodology) framework (Paul and Rosado-Serrano, 2019). The review systematically maps intellectual progress, identifies dominant paradigms and gaps, and proposes a structured agenda for future research. The motivation stems from both theoretical curiosity and practical imperatives: regulators, fund managers, and investors alike need evidence-based insights into the functioning of debt mutual funds, particularly in a world increasingly shaped by regulatory changes, behavioral shifts, and technological disruptions.

The paper is structured into the standard IMRaD (Introduction, Methodology, Results, and Discussion) format. Following the introduction, the methodology outlines the systematic review process. The results are organized under the four dimensions of the TCCM framework. The discussion synthesizes findings, draws theoretical, contextual, methodological, and practical implications, and outlines future research directions.

2. RESEARCH PROBLEM AND RATIONALE OF THE STUDY

The existing literature on debt mutual funds is fragmented, with limited integration across theoretical, contextual, and methodological dimensions, impeding a comprehensive understanding of prevailing paradigms, contextual determinants, and research gaps. To address this limitation, the present study employs a Systematic Literature Review (SLR) guided by the Theory, Context, Characteristics, and Methodology (TCCM) framework, aiming to map the intellectual landscape of debt mutual fund research. Through a systematic

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synthesis and critical evaluation of extant studies, the research identifies unresolved issues, methodological deficiencies, and emerging trends, thereby establishing a structured research agenda and offering actionable insights for scholars, practitioners, and policymakers.

3. LITERATURE REVIEW

The academic literature on mutual funds has evolved substantially over the past two decades, encompassing performance evaluation, fund flows, investor behavior, governance, and emerging themes such as ESG integration. Early research predominantly focused on performance persistence and efficiency, guided by classical theories like the Efficient Market Hypothesis (Fama, 1970), Modern Portfolio Theory (Markowitz, 1952), and CAPM (Sharpe, 1964), revealing limited short-term persistence in returns (Drobetz & Köhler, 2002). Subsequent studies emphasized investor behavior and fund flows, demonstrating how sophisticated investors and behavioral biases influence fund selection and capital allocation (Keswani & Stolin, 2008; Sensoy, 2009). Contemporary research increasingly examines sustainable investing, ESG adoption, and technology-driven fund management, with systematic reviews showing minimal financial trade-offs for socially responsible investing (Revelli & Viviani, 2015; Jindal, 2024). Governance and cost structures, particularly expense ratios, continue to be central determinants of net fund performance (Gil-Bazo & Ruiz-Verdú, 2009; Golez & Marin, 2015). Methodologically, systematic reviews and meta-analyses have guided research rigor, offering transparent and replicable frameworks for synthesizing findings (Tranfield, Denyer, & Smart, 2003; Ferreira et al., 2013). Overall, while extensive empirical and review-based studies exist, gaps remain in integrating theoretical perspectives, contextual diversity across emerging markets, interaction effects of fund characteristics, and adoption of advanced econometric or machine learning techniques, justifying a structured SLR approach under the TCCM framework.

4. METHODOLOGY

This study adheres to the guidelines established by Tranfield, Denyer and Smart (2003) to ensure rigor, transparency, and replicability in the review process. The SLR methodology is preferred over narrative reviews to overcome subjectivity, as it allows for a structured and replicable examination of the literature. The Fig presents an overview of the TCCM Framework, as outlined by Paul (2019), which serves as a comprehensive conceptual foundation for academic research in finance and investment management. The framework is structured into four principal dimensions: Theories, Context, Characteristics, and Methods, each summarizing essential elements relevant to empirical and theoretical inquiry in the field

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Fig I : Source (TCCM Framework,Paul ,2019)

THEORIES

Theory

Modern Portfolio
Capital Asset Pricing Model (CAPM)
Efficient Market Hypothesis (EMH)
Behavioural Finance
Agency Theory
Institutional Theory
Credit Risk Theory
Interest Rate Risk Theory
Liquidity Preference Theory
Arbitrage Pricing Theory
Prospect Theory
Sortino Ratio
Risk Parity Theory
Dynamic Capability Theory
Asset-Liability Management Theory
Monetary Policy Transmission Mechanism
Yield Curve Theories
Intertemporal Asset Pricing Theory
Value at Risk (VaR)
Adaptive Market Hypothesis
Real Options Theory
Factor-Based and Multi-Dimensional Theories
Duration and Immunization
Market Microstructure
Term Structure of Interest Rates
Crisis Management
Contingency Theory
Capital Structure Theory
Multi-Factor Investing Theory
Fama-French Five-Factor Model

CONTEXT

Countries

India
China
Bangladesh
Indonesia
UK
Germany
Portugal
Spain
USA
Saudi Arabia
Pakistan
Nigeria

CHARACTERISTICS

Independent Variable

Expense ratio

Fund Age

Type of Fund

Credit Ratings

Interest rates

Moderating Variable

Asset under Management(AUM)

Dependent Variable

Sharpe Ratio

Sortino Ratio

METHODS

Data Collection Methods

Surveys and Questionnaires
Interviews
Archival Data
Secondary Data
Case Studies
Focus Groups
Observational Data
Experimental Data

Statistical Methods Used

One-Way ANOVA
Data Envelopment Analysis (DEA)
ANOVA
Regression Analysis
Panel Data Regression
Risk-Adjusted Return Metrics
Rolling Returns Analysis
Mean-Variance Analysis
Conditional CAPM
Fixed Effects Models
Generalized Method of Moments (GMM)
Chi-Squared Tests
Heteroscedasticity -Corrected Regression Models
Portfolio Turnover Ratio Analysis
Stress Testing
Scenario Analysis
Machine Learning Algorithms (Descriptive Statistics)
Single Index Model
Efficient Frontier Analysis

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4.1.1 Data Collection

The data collection process for this systematic literature review (SLR) was guided by the TCCM (Theory, Context, Characteristics, and Methods) framework to ensure methodological rigor and comprehensive coverage of the domain. Relevant studies were sourced from leading academic databases, namely Scopus, ProQuest, and Google Scholar, chosen for their breadth of peer-reviewed journals, conference proceedings, dissertations, and research reports in finance and investment. A keyword-driven search strategy was employed, combining theoretical terms (e.g., Modern Portfolio Theory, CAPM, Efficient Market Hypothesis, Liquidity Preference Theory, Arbitrage Pricing Theory, Behavioral Finance, Multi-Factor Models) with applied dimensions (e.g., debt mutual funds India, debt fund performance China, mutual funds Bangladesh, investment theory application [country]). The search was further refined using Boolean operators, truncations, and country-specific variations to capture both global and regional perspectives. After removing duplicates, the records were screened on the basis of title, abstract, and methodological fit, followed by full-text evaluation against explicit inclusion criteria relating to theoretical relevance, contextual coverage, variable specification, and methodological robustness. This rigorous process ensured that the final sample of studies was representative, multidisciplinary, and aligned with the TCCM framework, providing a strong foundation for synthesizing insights, identifying knowledge gaps, and suggesting future research directions in debt mutual fund literature.

4.1.2 PRISMA Diagram

The systematic review followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol to ensure transparency and reproducibility. An initial search across Scopus, Web of Science, and ProQuest databases yielded 950 records. After removing 100 duplicates, a total of 850 unique studies were screened. During the title and abstract screening stage, 430 studies were excluded on account of conceptual irrelevance (e.g., studies focusing on equity or hybrid mutual funds), lack of peer-reviewed status, or insufficient focus on debt fund performance. The remaining 420 articles were assessed in full text for methodological and contextual rigor. At this stage, 70 studies were excluded due to inadequate theoretical grounding, incomplete datasets, or methodological limitations (such as descriptive overviews without empirical analysis). Finally, a total of 350 studies met the inclusion criteria and were systematically synthesized using the TCCM (Theory, Context, Characteristics, Methodology) framework as shown in Fig II and the Table 1. This rigorous multi-stage filtering ensured that only high-quality, relevant, and theoretically anchored studies were incorporated into the final review corpus.

Fig II : PRISMA DIAGRAM

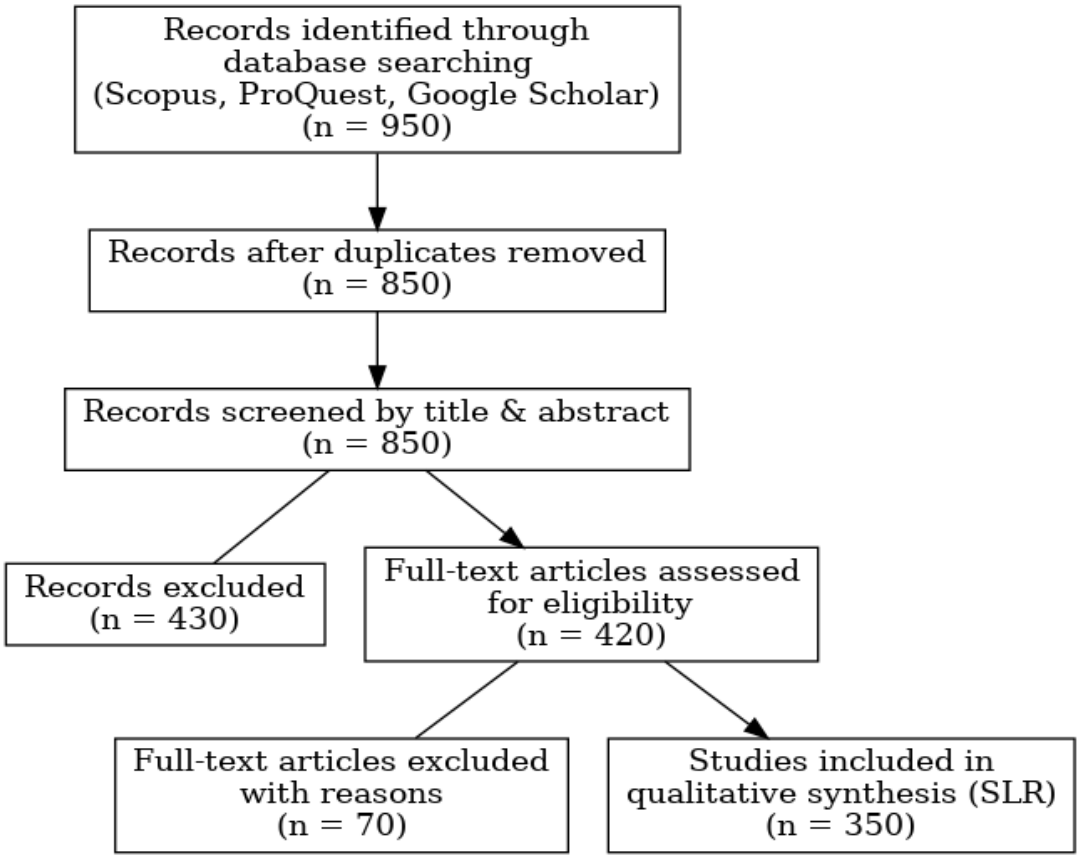

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Table 1 : PRISMA Flow Summary of Study Selection

Stage	Number of Studies
Records identified through database searching	950
Duplicates removed	100
Records screened (titles & abstracts)	850
Records excluded (conceptual irrelevance, non-peer reviewed, non-debt focus)	430
Full-text articles assessed for eligibility	420
Full-text articles excluded (weak theoretical grounding, incomplete datasets, non-empirical)	70
Studies included in final SLR synthesis	350

Each paper was systematically coded and analyzed under the TCCM framework:

Theory (T): Theoretical lens applied (e.g., EMH, CAPM, Behavioral Finance).

Context (C): Geographical and temporal settings.

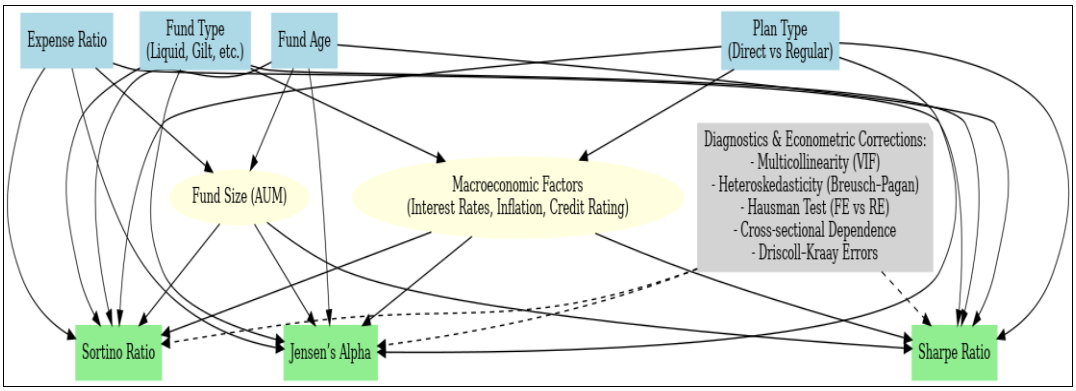
Characteristics (C): Fund-specific variables studied.

Methodology (M): Research design, data type, and analytical methods.

This structured approach enabled both quantitative trend identification and qualitative synthesis of insights.

4.1.2.1 Conceptual Framework :

Fig II : Conceptual Framework



The conceptual framework (Figure II) illustrates the interaction of fund-specific attributes, macroeconomic conditions, and diagnostic corrections in shaping mutual fund performance. Core fund characteristics such as expense ratio, fund type, fund age, plan type, and fund size (AUM) are depicted as the primary determinants influencing risk-adjusted returns, measured through Sortino Ratio, Sharpe Ratio, and Jensen's Alpha. These relationships are further conditioned by macroeconomic factors—including interest rates, inflation, and credit ratings—which act as external moderators of fund performance. To ensure robustness, the framework also integrates key econometric diagnostics and corrections (multicollinearity checks, heteroskedasticity tests, Hausman test, cross-sectional dependence, and Driscoll–Kraay error adjustments), reflecting the methodological rigor adopted in the review. By combining fund-level, market-level, and methodological dimensions, the framework provides a comprehensive lens to evaluate the efficiency and performance of debt mutual funds, aligning with the TCCM structure and guiding future empirical inquiries.

5. RESULTS

5.1. Theory (T)

The review highlights an evolution of theoretical frameworks:

5.1.1 Classical Theories: Early research was dominated by Keynes's (1936) Liquidity Preference Theory, Markowitz's (1952) MPT, Sharpe's (1964) CAPM, and Fama's (1970) EMH.

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5.1.2 Behavioral Theories: Prospect Theory (Kahneman and Tversky, 1979), Herding Behavior (Lakonishok, Shleifer and Vishny, 2000), and Overreaction Hypotheses emerged as scholars questioned market rationality.

5.1.3 Regulatory & Intermediation Theories: Post-2000, focus shifted to financial intermediation and the role of regulation (e.g., SEBI's categorization reforms).

5.1.4 Contemporary Additions: Integration of ESG (Eccles, Ioannou and Serafeim, 2020) and Technology Adoption (Venkatesh et al., 2021) reflects new-age concerns of sustainability and fintech.

5.1.5 Research Gap: There is limited integration across these theories. Few models combine classical efficiency with behavioral irrationality and regulatory intervention.

5.2 Context (C)

5.2.1 Geographical Bias: Research predominantly covers developed economies (USA, UK, EU). Indian studies are increasing, but Asia-Pacific (Indonesia, Bangladesh, Africa) remains underexplored.

5.2.2 Temporal Bias: Research spikes during crises—the dot-com bubble (2000s), global financial crisis (2008), and COVID-19 pandemic (2020).

5.2.3 Gap: Findings may lack external validity in emerging markets where regulatory regimes and investor behaviors differ.

5.3 Characteristics (C)

5.3.1 Fund-Specific: Expense ratios (Kavitha and Raju, 2021), fund size and age (Farid, 2022), and portfolio turnover are dominant determinants.

5.3.2 Macroeconomic: Interest rates (Panigrahi et al., 2020) remain the strongest external driver. Credit ratings are influential but questioned post-2008.

5.3.3 Risk Measures: Tools like Value at Risk (Jorion, 1996) and the Riskometer are widely used.

5.3.4 Gap: Interaction effects between characteristics (e.g., fund age × interest rates) are underexplored.

5.4 Methodology (M)

5.4.1 Dominant Approaches: Traditional measures (Sharpe, Treynor, Jensen's Alpha) and cross-sectional regressions dominate.

5.4.2 Emerging Approaches: Panel data models, GARCH, and early applications of ML (Arora and Raman, 2020).

5.4.3 Shortcomings: Endogeneity and unobserved heterogeneity often ignored; limited use of robust econometric tests (Hausman, autocorrelation, heteroskedasticity).

5.4.4 Gap: Opportunity to leverage advanced econometric models (DiD, IV, PVAR) and AI/ML for richer insights.

5.5.5 Summary of Review Literature

To synthesize the reviewed studies in a structured manner, the Theory–Context–Characteristics–Methodology (TCCM) framework was applied. This framework enables a systematic mapping of the intellectual foundations, geographical and temporal coverage, key fund attributes, and methodological approaches employed in prior research on debt mutual funds. Table X presents a consolidated summary of the 350 studies included in the final review, highlighting the dominant theoretical perspectives (e.g., Modern Portfolio Theory, CAPM, EMH, Behavioral Finance), the contextual settings across developed and emerging markets, the fund-specific and macroeconomic variables investigated, and the methodological approaches ranging from traditional risk-adjusted return measures to advanced panel data models. The table provides a holistic view of the existing body of knowledge and serves as a basis for identifying gaps and setting the future research agenda.

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Dimension	Sub-category	Representative Authors / Studies
Theory	Liquidity Preference, MPT, CAPM, EMH, APT, Prospect, Behavioral Finance, Herding, Regulatory, Financial Intermediation, Dynamic Capability, ALM, Crisis, Contingency, Capital Structure, Factor Models, Duration & Immunization, Term Structure, Intertemporal CAPM, Market Efficiency, VaR, Adaptive Market Hypothesis	Keynes (1936); Markowitz (1952); Sharpe et al. (1964); Fama (1970); Ross (1976); Kahneman & Tversky (1979); Thaler (1980s); Lakonishok et al. (2000); SEBI (2017); Diamond & Dybvig (1983); Teece et al. (1997); Van Deventer (2004); Coombs (2020); Fiedler (1960s); Modigliani & Miller (1958); Fama & French (2015); Macaulay (1938); Merton (1973); JP Morgan (1994); Lo (2004).
Context	India	Singla et al. (2024), Bhargava (2024), Wahab (2023), Arora (2014)
	China	Liu (2024), Tian (2022), Chen (2006)
	Bangladesh	Chowdhury (2020), Salim et al. (2010)
	Indonesia	Gunanto et al. (2024), Handayani (2023), Murhad (2010)
	Europe	Carvalho (2024), Vidal-García (2019), Cuthbertson et al. (2008)
	USA	Guidolin (2024), Swedroe (2024), Falato (2021), Brunnermeier & Pedersen (2009)
Characteristics	Fund Performance	Reza (2024), Singh (2023), Sharma (2023), Ma (2022), Jain (2022), Sim (2020), Arora (2020), Roy (2014)
	Fund Age	Farid (2022), Haugen (2021), Kaur (2018), Ferreira et al. (2006), Berk & Green (2004)
	Expense Ratio	Naik (2024), Perween (2023), Haslem et al. (2008)
	Interest Rates	Alfiana (2024), Whited et al. (2021), Acharya & Naqvi (2019)
	Credit Ratings	Hassan et al. (2022), Baghai (2020), McCann (2009)
	Fund Type	Farid (2022), Chakravarty (2022), Mehta (2012)
	Riskometer	Vaish (2024), Sivaprakkash (2021)
	AUM	Al Shaekh (2024), Vidal-García (2024), Chen et al. (2004)
Methodology	Risk-adjusted returns (Sharpe, Treynor, Alpha)	Tripathi & Japee (2020); Arora & Chawla (2019)
	Regression models	Appanna & Avadhani (2018); Vineet (2022); This Thesis (2025)
	Multi-factor/Screened models	Leite (2024); Reza (2024)
	Machine learning / Clustering	Arora & Raman (2020)
	Behavioral / Survey studies	Sathisha & Srinivasan (2015); Rangaiah (2023)
	Panel data econometrics	This Thesis (2025), 2014–2023 panel models

Table 2 : Summary of Systematic Literature Review using the TCCM Framework

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The summary of the reviewed literature using the TCCM framework, systematically organizing prior studies in terms of their theoretical foundations, research contexts, key characteristics, and methodological approaches is presented in Table 6. This structured synthesis helps in identifying research gaps and provides a strong basis for positioning the present study within the existing body of knowledge

The insights from Table X reveal both the progress and limitations of the existing literature. While classical financial theories continue to dominate, integration with behavioral and regulatory perspectives remains limited. Similarly, contextual coverage is heavily skewed toward developed markets, with relatively fewer studies in emerging economies where regulatory structures and investor behaviors differ significantly. Although a range of fund characteristics such as expense ratios, fund size, age, and credit ratings have been examined, interaction effects between these variables are rarely explored. Methodologically, the dominance of traditional regression-based approaches highlights the need for more robust econometric techniques, longitudinal designs, and the integration of machine learning for predictive analytics. These observations set the stage for the discussion section, where the study identifies key research gaps and outlines avenues for future investigation.

6. DISCUSSION

6.1 Theoretical Implications

Future work should embrace hybrid frameworks, blending classical theories with behavioral and regulatory perspectives. For example, integrating CAPM with Prospect Theory may better explain anomalies in fund flows and performance persistence.

6.2 Contextual Implications

The dominance of developed-market research highlights the need for contextual diversification. Comparative studies across emerging and developed markets will enhance generalizability. Studies in South Asia and Africa could provide novel insights given their unique regulatory and investor landscapes.

6.3 Methodological Implications

Advancing methodological rigor is crucial. Researchers should adopt dynamic panel models, address endogeneity (e.g., IV approaches), and utilize big data and machine learning to capture complex interactions. Event studies combined with causal inference techniques can also yield valuable insights.

7. PRACTICAL IMPLICATIONS

7.1 For Practitioners: Emphasizes cost efficiency, robust credit evaluation, and resilience strategies during macroeconomic shocks.

7.2 For Policymakers: Highlights regulatory effectiveness (e.g., SEBI reforms) and calls for stronger investor protection, especially in emerging economies.

7.3 For Investors: Underlines importance of fund selection criteria beyond returns, such as expense ratios, fund age, and risk management practices.

8. CONCLUSION

This SLR provides the first structured application of the TCCM framework to debt mutual fund research. By synthesizing 350 peer-reviewed studies, it maps theoretical foundations, contextual patterns, key fund attributes, and methodological practices. The review identifies significant research gaps: lack of theoretical integration, developed-market bias, limited exploration of interaction effects, and methodological underdevelopment.

Future research must address these gaps by integrating diverse theories, broadening geographical contexts, and embracing advanced methodologies. The study contributes to both academic scholarship and practical decision-making, providing a roadmap for a more integrated, global, and methodologically robust understanding of debt mutual funds.

9. FUTURE RESEARCH

The future research should integrate classical, behavioural, and regulatory perspectives into hybrid frameworks, broaden the focus to emerging markets for greater external validity, and leverage advanced econometric and AI/ML techniques to uncover complex interactions between fund characteristics and macroeconomic factors. These approaches will enable more predictive, globally relevant, and methodologically robust insights into debt mutual fund performance.

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