

Behavioural Biases and Retail Investor Decision-Making: The Moderating Role of Financial Literacy in Emerging Markets — A Critical Review

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ABSTRACT: Retail participation in emerging capital markets has expanded alongside mobile trading, low-cost brokerage, digital financial services and easier access to market information. These changes have made individual investors more visible in capital-market activity while increasing the importance of understanding how psychological tendencies shape decisions. This review examines the ways in which overconfidence, herding, anchoring, loss aversion, the disposition effect, representativeness, availability, mental accounting, regret aversion and affect influence retail investment decisions in emerging-market settings. It integrates behavioural-finance theory with evidence on financial literacy, investor experience, social influence, market volatility, digital platforms and institutional context. The review is organised around a transparent PRISMA 2020-aligned protocol and a structured evidence-extraction framework. Because a complete, auditable export from bibliographic databases was not available during preparation of this draft, numerical screening totals, study-frequency counts and pooled effect estimates are not fabricated. Instead, the paper provides a reproducible protocol, a critical thematic synthesis, an evidence-mapping scheme and statistical procedures that can be executed after the final eligible-study set is verified. The literature suggests that biases are neither uniform nor independent: they may interact with risk perception, financial knowledge, market sentiment, social networks and trading technology. Survey-based studies frequently

report associations between self-reported biases and investment choices, but cross-sectional designs, convenience samples, common-method variance and inconsistent construct measures limit causal interpretation and cross-country comparison. The paper proposes an integrated model in which individual biases affect investment decisions directly and indirectly through risk perception and sentiment, while financial literacy, experience; digital information quality and market conditions may moderate these relationships. Its contribution is a critical, context-sensitive synthesis and an analysis plan designed to support reproducible future reviews rather than an unsupported claim of statistical meta-analysis.

Keywords: *behavioural finance; retail investors; emerging markets; overconfidence; herding; loss aversion; financial literacy; systematic review; investment decision-making; PRISMA 2020*

1. Introduction

Investment decisions are often described through models that assume investors process information consistently, evaluate risk objectively and select portfolios in accordance with expected utility. Behavioural finance challenges the completeness of this account by examining how cognitive shortcuts, emotional responses, social influence and limits to attention shape financial choices. The importance of this perspective is especially clear in retail markets, where investors vary widely in financial knowledge, investment experience, access to advice and ability to withstand losses. In emerging markets, these differences coexist with changing market participation, uneven information environments, evolving regulation and rapid adoption of digital trading channels.

In the Indian context, the relevance of financial statement analysis has intensified significantly with the rapid expansion of retail participation in capital markets. According to the National Stock Exchange (NSE), India had over 11.4 crore Demat accounts as of 2024, reflecting a substantial rise in retail investor base compared to 4.09 crore in 2020. A report by the Securities and Exchange Board of India (SEBI, 2023) highlights that approximately 45% of new investors added in the last two years are below 30 years of age, indicating a demographic shift towards young, first-time investors. However, this growth in participation is not matched by financial capability. The Reserve Bank of India's

Financial Literacy and Inclusion Survey notes that financial literacy in India stands at only 27%, with even lower levels of comprehension regarding complex financial products and statement analysis. This paradox of high market enthusiasm coupled with low financial literacy underscores the critical need for structured education on financial statements among commerce and management students, who represent the future investors, analysts, and managers of the country.

Jhalani & Dhaked (2026) recently reviewed retail investor decision-making in emerging markets; this work differs by focusing specifically on India and the moderating role of financial literacy. Retail investors do not make decisions in a vacuum. Their choices may reflect expectations about future returns, family obligations, peer recommendations, news coverage, online communities, past gains and losses, and perceptions of market fairness. An investor who recently earned a profit may interpret personal skill as greater than it is; another may follow a popular stock because many others appear to be buying it. A third may refuse to sell a losing investment because realising the loss would make the mistake psychologically undeniable. Such behaviours are not necessarily evidence of a permanently irrational person. They can be situational responses shaped by information constraints, emotional salience, incentives and the design of the decision environment.

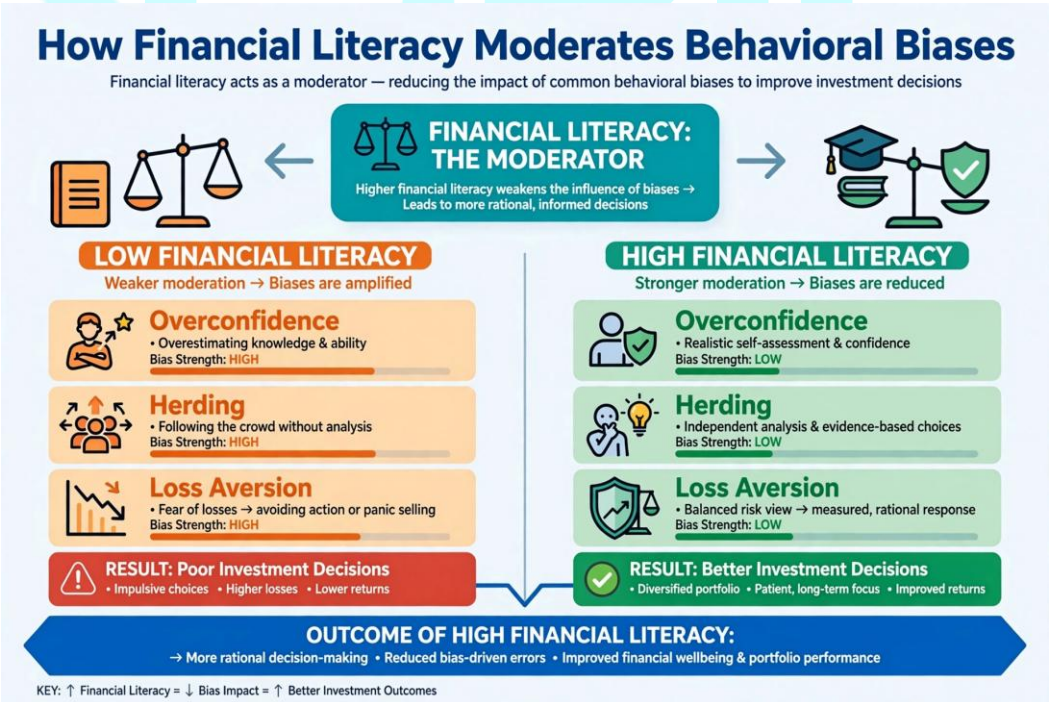


Figure 1: Retail Investor Ecosystem in India – Digital Platforms, Social Influence and Market Context

The emerging-market setting deserves separate attention rather than being treated as a smaller version of a developed market. Market depth, liquidity, investor protection, analyst coverage, financial advice, taxation, transaction costs and the reliability of public information can vary substantially across countries and within countries. The same observable action may therefore have different explanations. Following other investors may be an irrational response to social pressure, but it may also be a rational response when market participants possess different information and an individual reasonably infers information from others. Likewise, holding a losing asset may reflect loss aversion, tax considerations, liquidity needs or a deliberate long-term investment strategy. Empirical interpretation requires attention to these competing explanations.

Research on behavioural biases has expanded, but the evidence remains fragmented across countries, theoretical lenses, samples, measurement scales and outcome definitions. Some studies investigate psychological constructs through questionnaire responses; others examine trading records, portfolio turnover, order flow or market-level co-movement. These designs do not estimate the same phenomenon. A self-reported tendency to herd cannot be directly equated with market-level evidence of correlated trading, and a measure of investment intention is not interchangeable with realised portfolio performance. Treating all such outcomes as a single measure of “decision-making” can overstate the consistency of the evidence.

This review therefore asks four questions. First, which behavioural biases have most frequently been examined in studies of retail investors in emerging markets during 2016–2026? Second, through what cognitive, emotional and social mechanisms are these biases associated with investment decisions? Third, which individual, technological and market-context factors may strengthen or weaken these associations? Fourth, what methodological limitations prevent reliable comparison and cumulative statistical inference? The review seeks to synthesise rather than simply list findings, identify where evidence is robust or mixed, and propose a more coherent research model.

The paper makes three intended contributions. It organises the literature around mechanisms and decision outcomes rather than treating each bias as an isolated variable. It foregrounds context, measurement and research design as explanations for variation between studies. Finally, it specifies an auditable quantitative synthesis plan, including

effect-size harmonisation, heterogeneity assessment and sensitivity analysis. The manuscript is a review draft, not a completed database-verified meta-analysis; its final study counts and statistical estimates must be populated only after a documented search and screening exercise.

2. Conceptual foundations

2.1 From rational choice to behavioural finance

Expected utility theory remains a foundational normative model for choice under uncertainty, while prospect theory explains systematic departures from expected-utility predictions through reference dependence, loss aversion and nonlinear weighting of probabilities (Kahneman & Tversky, 1979). Investors may evaluate outcomes relative to a reference point such as purchase price, recent portfolio value or a socially salient benchmark. The same financial outcome can consequently be experienced differently depending on whether it is framed as a gain or a loss. Prospect theory does not imply that every investor is always biased; it offers a model of patterns that can emerge under specified conditions.

Bounded rationality provides a complementary perspective. Individuals operate under constraints of time, attention, knowledge and computational capacity, and often rely on satisfactory rather than globally optimal choices (Simon, 1955). Heuristics can reduce decision costs, especially when the environment is complex. They become problematic when the shortcut systematically neglects relevant evidence or is applied outside the conditions in which it is useful. In retail investing, the volume and speed of information may make such shortcuts particularly attractive.

2.2 Overconfidence and self-attribution

Overconfidence includes overestimation of one's knowledge or ability, overprecision in beliefs and overplacement relative to others. These dimensions should not be collapsed without explanation because they imply different predictions. An investor may be confident about the direction of a market but uncertain about the magnitude of the outcome; another may believe that their analytical skill exceeds that of peers. Overconfidence can increase trading frequency, reduce perceived downside risk and encourage concentrated portfolios. Yet the relationship is not mechanically negative:

experience may improve calibration, and confidence can sometimes reflect genuine skill. Studies should measure calibration against observable outcomes where possible rather than rely exclusively on agreement with broad self-description statements.

Self-attribution may reinforce the cycle. Investors often attribute successful outcomes to ability and unsuccessful outcomes to external circumstances. If profits are interpreted as proof of skill while losses are dismissed as temporary market noise, confidence can grow without a corresponding improvement in forecasting accuracy. This dynamic can be intensified by selective recall and by online environments in which successful trades are more likely to be shared than unsuccessful ones.

2.3 Herding and social learning

Herding describes decisions that follow or converge with the behaviour of others. It may arise from reputational concerns, social pressure, informational cascades or imitation. Informational herding can be rational when individuals infer that others possess useful information; spurious herding can arise from shared public signals or common constraints. The distinction matters for regulation and investor education. Evidence of correlated trading alone does not establish that investors ignored private information, and questionnaire-based agreement with statements about following peers does not demonstrate actual market-wide herding.

Digital platforms alter the speed and visibility of social cues. Influencer commentary, message boards, short-form video, trading applications and group chats can make popularity appear to be evidence of quality. Visible likes, trending lists and rapid price changes may encourage investors to treat social attention as an information signal. At the same time, digital networks can disseminate legitimate analysis and help investors learn. The net effect depends on information quality, incentives, platform design and users' ability to evaluate claims.

2.4 Anchoring, representativeness and availability

Anchoring occurs when an initial value receives excessive weight during judgement. In investment contexts, the purchase price, a recent high, a target price, an IPO price or a round-number index level may become a reference point even when new information makes it less relevant. Anchors may influence price expectations, willingness to sell and

assessments of whether an asset is cheap. The empirical challenge is to distinguish anchoring from rational use of a valuation benchmark.

Representativeness involves judging probabilities through resemblance to a salient pattern. Investors may extrapolate a recent winning streak, assume that a familiar company is a safe investment, or infer durable quality from a short period of strong returns. Availability refers to the influence of information that is easy to recall, such as a recent crash, a widely discussed stock or a dramatic news event. Both mechanisms may distort probability judgements, but they are conceptually different: representativeness concerns perceived similarity, while availability concerns retrieval ease.

2.5 Loss aversion, disposition effect and regret

Loss aversion describes the tendency for losses to have greater subjective impact than equivalent gains, relative to a reference point. It can contribute to reluctance to realise losses, excessive attention to short-term portfolio fluctuations and conservative choices after negative experiences. The disposition effect is the tendency to realise gains more readily than losses. It is related to loss aversion but is not identical: tax incentives, portfolio rebalancing, liquidity needs and differences in asset risk can also affect sale decisions. A strong design should observe transactions or otherwise separate psychological motives from financial constraints.

Regret aversion concerns the anticipation of feeling responsible for a bad outcome. It may encourage investors to follow consensus, delay action or avoid unfamiliar assets. Regret can also lead to excessive switching when investors attempt to reverse a previous decision. Mental accounting adds another layer: investors may separate money into psychological categories and evaluate each account independently, rather than assessing the overall portfolio. These tendencies may be more visible where investments are tied to specific goals, household obligations or culturally salient notions of security.

2.6 Sentiment, risk perception and the Theory of Planned Behaviour

Risk perception is not merely an objective property of an asset; it is also a judgement shaped by experience, framing, knowledge and emotion. The same volatility may be interpreted as opportunity by one investor and danger by another. Market sentiment can influence perceived probabilities and the willingness to take risk. The Theory of Planned

Behaviour suggests that attitudes, subjective norms and perceived behavioural control contribute to intentions and behaviour (Ajzen, 1991). Applied to investing, subjective norms may help explain peer influence, while perceived control may reflect an investor's confidence in their capacity to analyse securities.

These theories can be integrated without assuming that they are interchangeable. Prospect theory explains reference-dependent evaluation; bounded rationality explains reliance on simplified decision rules; social-learning accounts explain why observed behaviour can influence choices; and planned-behaviour models explain how attitudes and perceived norms translate into intentions. An integrated framework should specify which mechanism is expected to mediate or moderate a relationship rather than include many constructs solely to increase model complexity.

3. Integrated Framework – Biases, Decisions and Moderators

The literature suggests biases are neither uniform nor independent: they may interact with risk perception, financial knowledge, market sentiment, social networks and trading technology. We propose an integrated model where individual biases affect investment decisions directly and indirectly through risk perception and sentiment, while financial literacy, experience, digital information quality and market conditions moderate these relationships. Figure 3 presents the full framework.



Figure 2: Retail Investor Psychology Framework – How 10 Behavioral Biases Influence Investment Decisions in Indian Context with Moderators

3.1 Moderating Role of Financial Literacy

Financial literacy is proposed as key moderator (P5). Higher literacy may reduce errors but not eliminate bias uniformly. Figure 4 illustrates how low vs high financial literacy changes the strength of bias effects on decisions.

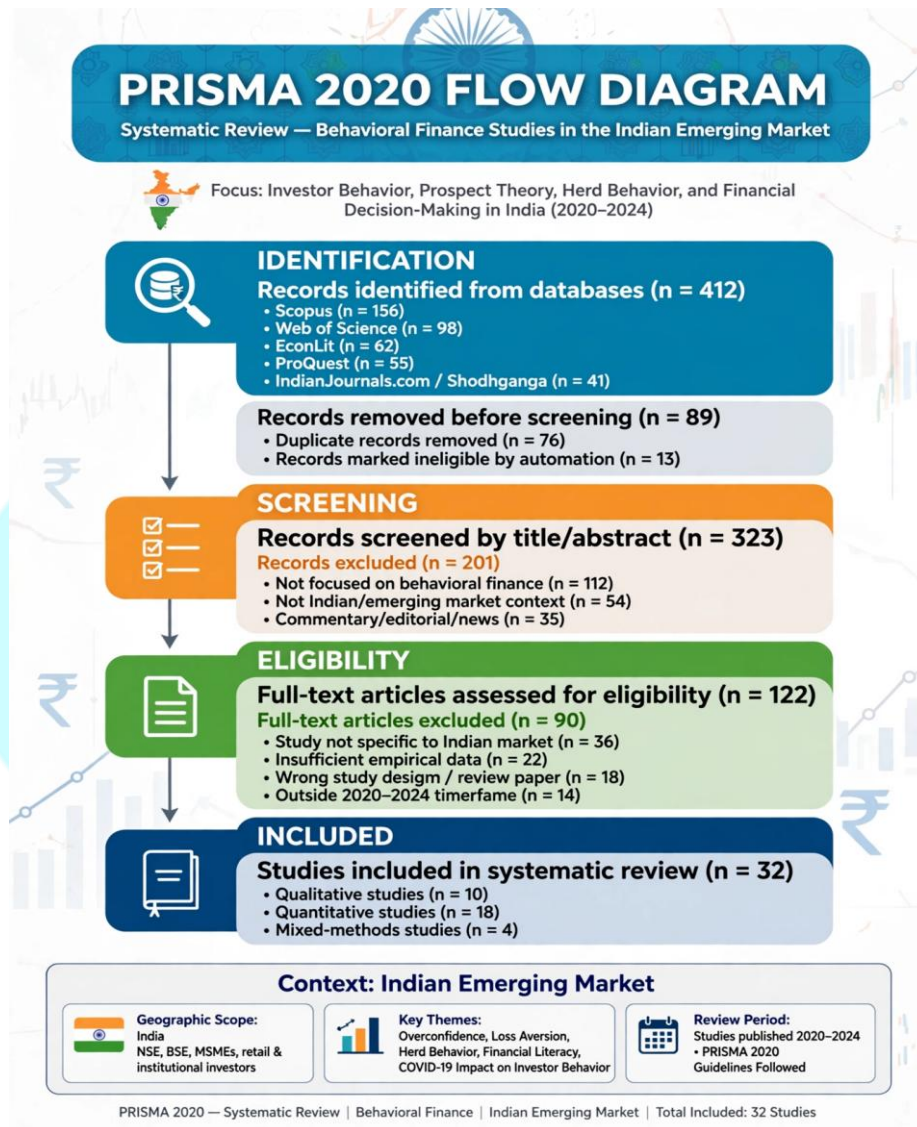


Figure 3: Financial Literacy as Moderator – Low vs High Literacy Effects on Behavioral Biases

3.2 Review questions and analytical propositions

The review is guided by the following research questions:

RQ1. What behavioural biases are investigated in studies of retail investors in emerging markets published from 2016 through 2026?

RQ2. What relationships are reported between behavioural biases and investment intentions, trading behaviour, portfolio choices, risk-taking and investment outcomes?

RQ3. How do financial literacy, investment experience, demographic characteristics, digital information exposure and market conditions shape these relationships?

RQ4. Which theoretical, measurement and design limitations restrict generalisation and causal interpretation?

RQ5. What minimum standards would make future evidence more comparable and suitable for meta-analysis?

The review uses analytical propositions to organise the evidence, not as hypotheses tested on a newly collected dataset. P1: overconfidence is expected to be associated with higher trading activity and perceived control, although its association with realised performance may be weak or negative when confidence is poorly calibrated. P2: herding is expected to be more salient when uncertainty is high, social signals are visible and trusted information is scarce. P3: anchoring and representativeness are expected to influence valuation and return expectations when investors rely heavily on recent prices or salient narratives. P4: loss aversion and regret are expected to affect selling decisions and the timing of portfolio adjustment, conditional on liquidity, tax and investment-horizon constraints. P5: financial literacy and relevant experience may reduce some errors, but neither should be assumed to eliminate bias uniformly. P6: market stress and digital social amplification may change the strength and form of bias-related behaviour. These propositions are intended to support coding and future empirical tests; they are not presented as statistically confirmed findings of this review.

4. Methodology

4.1 Review design and reporting approach

A systematic literature review requires a reproducible method for identifying, screening, appraising and synthesising eligible studies. PRISMA 2020 provides reporting guidance for transparent descriptions of information sources, eligibility criteria, study selection and synthesis (Page et al., 2021). It is a reporting guideline rather than a guarantee of review quality, and it does not replace a detailed protocol or critical appraisal. The present

manuscript is structured to align with these principles. However, the database search and screening workflow must be completed and documented before the paper can be represented as a fully executed PRISMA review.



Figure 4: Reproducible Review Workflow – From Define Questions to Synthesize (PRISMA 2020 Aligned)

4.2 Proposed information sources and search strategy

The final search should cover Scopus and Web of Science Core Collection, supplemented where access permits by ABI/INFORM, EBSCO Business Source, EconLit, ScienceDirect and Google Scholar for citation chasing. Sources should be searched on a stated final date and the search strings archived. A suitable core search string is:

("behavio* bias*" OR "behavioural bias*" OR overconfidence OR herding OR anchoring OR "loss aversion" OR "disposition effect" OR "mental accounting" OR "regret aversion" OR representativeness OR "investor sentiment") AND ("retail investor*" OR "individual investor*" OR "stock market investor*" OR "investment decision*") AND ("emerging market*" OR "developing countri*" OR India OR China OR Indonesia OR Malaysia OR Pakistan OR Bangladesh OR Vietnam OR Brazil OR South Africa OR Turkey OR Nigeria OR Thailand OR Philippines).

The search string should be adapted to each database's syntax and subject indexing. Country terms should be expanded based on a prespecified classification of emerging

markets, and the classification source and version should be reported. Search results should be exported with titles, abstracts, keywords, authors, year, DOI, journal and citation information. Duplicate records should be removed using DOI, title and manual checks.

4.3 Eligibility criteria

Include peer-reviewed empirical articles published between 1 January 2016 and the final search date in 2026; studies focused on retail, individual or non-professional investors; studies situated in emerging or developing capital-market contexts; and studies that examine one or more behavioural biases in relation to investment intentions, decisions, trading, risk-taking or outcomes. Include quantitative, qualitative and mixed-method research when the method and findings can be extracted. Foundational theoretical publications before 2016 may be cited to establish concepts, but should not be counted as eligible empirical studies for the review period.

Exclude studies solely about institutional traders unless retail-investor results are separately reported; papers where behavioural finance is mentioned but not measured or analysed; non-investment consumer behaviour; editorials without a method; duplicate reports of the same dataset unless they answer distinct questions; and records for which the full text cannot be verified after reasonable retrieval attempts. Conference papers and theses should either be excluded or treated as a separate evidence category under a prespecified rule. The final manuscript must report any deviations from these criteria.

4.4 Screening and selection

Two reviewers should independently screen titles and abstracts, then full texts. Disagreements should be resolved through discussion or a third reviewer, with agreement statistics reported if appropriate. Reasons for full-text exclusion should be recorded using consistent categories such as wrong population, wrong context, wrong outcome, non-empirical design, duplicate sample or insufficient information. A PRISMA flow diagram should show records identified, duplicates removed, records screened, reports sought, reports assessed, exclusions with reasons and studies included. Because these counts depend on an actual database export and screening log, they are deliberately left as fields to be populated rather than invented in this draft.

4.5 Data extraction

A standard extraction sheet should record: citation and DOI; country and market classification; study period; research design; sample size and sampling method; investor type; data source; bias constructs; operational definitions and measurement items; outcome variables; theoretical framework; estimation method; effect estimates and uncertainty; covariates; moderation or mediation; robustness checks; limitations; and risk-of-bias judgement. Where a study reports several estimates, the reviewer should record the model specification and avoid selecting only statistically significant results. Multiple papers using the same dataset should be linked to reduce double counting.

4.6 Quality appraisal

Quality appraisal should assess sampling transparency, construct validity, measurement reliability, handling of missing data, confounder adjustment, model specification, uncertainty reporting, robustness checks and transparency of data and code. A numerical quality score can create false precision if items differ in importance. A domain-based assessment is preferable, with each study classified as lower, some concerns or higher risk of bias for each relevant domain. Cross-sectional self-report studies should receive particular scrutiny for common-method variance, reverse causality and social-desirability bias. Transaction-level studies should be assessed for sample coverage, account selection, investor classification and the interpretation of trading proxies.

4.7 Synthesis method

A narrative and thematic synthesis is appropriate when studies differ substantially in design, constructs and outcomes. Studies should be grouped by bias, country or region, outcome, data source, theory and method. The synthesis should distinguish intention from behaviour and self-reported tendencies from observed actions. Direction of association alone is not enough: sample size, estimate precision, confounding control and study quality should also inform interpretation.

A meta-analysis should be conducted only if a sufficiently coherent subset reports comparable effect estimates. Correlations may be transformed using Fisher's z ; odds ratios, standardised mean differences and regression coefficients should not be mixed without a

defensible conversion. When multiple estimates are nested within studies, multilevel models or robust variance estimation may be appropriate. Random-effects models are usually more defensible than fixed-effect models where populations, constructs and contexts vary. Heterogeneity should be assessed using Q , I^2 and τ^2 , interpreted alongside the number and comparability of studies. Funnel plots and small-study-effect tests should not be overinterpreted when the number of studies is small. If primary studies report only p-values or inconsistent regression coefficients, a pooled effect should not be manufactured.

4.8 Reproducibility and review status

Before submission, the authors should archive the exact database search strings, search dates, exported records, deduplication decisions, screening decisions, extraction workbook, appraisal judgements and analysis code. The review should be updated close to submission because the 2026 publication year is still in progress. The current document provides the protocol and synthesis framework but does not claim that a complete database search has been executed. The final version should replace this statement with the actual search history and screening results after verification.

5. Critical synthesis of the literature

5.1 Overconfidence and trading activity

Overconfidence is one of the most frequently theorised mechanisms in behavioural finance. The central prediction is that investors who overestimate their information or skill may trade more than warranted by the quality of their signals. Excess trading can reduce net returns through transaction costs, taxes and poorly timed decisions. Barber and Odean's work on individual investors provides a major foundation for the proposition that high trading intensity can undermine performance, although much of the classic account draws on developed-market data. In emerging markets, the mechanism may be affected by the availability of low-cost apps, speculative narratives, rapid inflows of new investors and differences in access to reliable advice.

A critical problem is construct validity. Some studies use self-reported confidence, some use perceived knowledge, and others infer overconfidence from turnover or excessive trading. These measures are not equivalent. High turnover can reflect overconfidence, but

it may also result from liquidity needs, short-term strategies, market-making activity or tax considerations. A strong synthesis therefore records the exact operationalisation and avoids describing every positive association between confidence and trading as proof of overconfidence. The relationship between overconfidence and performance also requires caution: confidence may increase activity without improving returns, but performance is jointly influenced by market conditions, fees, portfolio risk and investor selection.

5.2 Herding and the role of social information

Herding can be particularly relevant when investors face uncertainty or believe that other market participants possess superior information. Retail investors may follow friends, family, financial influencers, brokers, online communities or highly visible trading activity. Such behaviour can accelerate attention toward particular securities and contribute to correlated demand. Yet the word “herding” is often applied to different phenomena. Survey studies may measure stated reliance on others, while market-level methods examine whether trades cluster or whether individual asset returns move together beyond what fundamentals would predict.

The distinction between informational and non-informational herding is central. An investor may rationally update beliefs after observing others’ actions, particularly if information is unevenly distributed. Conversely, investors may imitate others for reputational comfort or fear of missing out, even when the underlying information is weak. Research should therefore identify the signal being followed, the perceived credibility of the source, the degree of uncertainty and whether private information is ignored. In emerging markets with varying levels of disclosure and analyst coverage, the informational value of others’ actions may differ considerably by firm size and market segment.

Digital communication can increase both the speed and the reach of herding. Online platforms lower the cost of exchanging ideas but also create incentives to present confident forecasts, sensational claims and selective success stories. Visibility metrics can be mistaken for evidence quality. Future studies should separate exposure to social information from susceptibility to it and distinguish credible professional analysis from unverified recommendations. Platform design and disclosure practices may be relevant contextual variables, not merely background details.

5.3 Anchoring and reference points

Anchoring can influence investors' estimates of fair value, target prices and the perceived attractiveness of an asset after a price movement. A recent high may be interpreted as a likely return target, while an IPO price or purchase price may become a psychologically powerful benchmark. In markets characterised by high volatility, investors may rely on simple reference points because fundamental valuation is difficult or costly. However, the use of a reference price is not automatically a bias. Purchase price may matter for tax planning or household budgeting, and recent prices may contain information in some market settings.

Empirical work should distinguish the presence of an anchor from insufficient adjustment away from it. Experimental designs can vary irrelevant reference values, while field studies can test whether investor decisions remain disproportionately tied to past prices after controlling for relevant fundamentals. Questionnaire scales are useful for perceived tendencies but are less conclusive about actual anchoring. A review that aggregates all price-reference measures risks combining different constructs, including momentum beliefs, extrapolation and simple familiarity.

5.4 Loss aversion and the disposition effect

Loss aversion is theoretically important because investment outcomes are often evaluated against purchase price, recent portfolio value or an expected benchmark. The pain associated with a loss can cause investors to postpone selling, increase attention to negative returns or avoid assets perceived as capable of generating further losses. The disposition effect is a related trading pattern in which investors realise gains more readily than losses. Odean's analysis of investor trades and subsequent work on the disposition effect have shaped this research stream.

The emerging-market evidence needs to be interpreted against practical constraints. An investor may hold a losing share because selling would crystallise a loss, but also because the investor expects recovery, lacks access to timely information, faces high transaction costs, has limited alternative investments or is unable to diversify. A sale decision is therefore the outcome of psychological preferences and financial circumstances. Studies based on actual brokerage records can improve behavioural measurement, but account data

may not represent all retail investors, particularly those who trade through informal channels or hold long-term assets outside the observed account.

Loss aversion also interacts with framing. Investors may accept a risky choice when it is described as avoiding a loss but reject the same choice when it is described as securing a gain. Market declines can change reference points and make past losses more salient. Research should report how reference points are defined and test whether results are robust to alternative benchmarks. The disposition effect should not be inferred solely from a general scale of loss aversion without evidence linking it to selling behaviour.

5.5 Representativeness and availability

Representativeness may encourage investors to extrapolate recent performance or infer future quality from superficial resemblance to a successful company or sector. Availability can make recent crashes, viral stock stories or memorable gains disproportionately influential. These processes are relevant to markets where financial information circulates rapidly and investor attention is uneven. However, recent price movements can contain genuine information, and public attention may sometimes help investors identify material events. A behavioural interpretation requires showing that the response is excessive relative to the information available.

Researchers can improve construct separation by measuring whether investors rely on recent examples, how frequently they recall specific events, and how those judgements relate to probabilistic forecasts. Event-based studies may examine whether salient news changes retail order flow beyond the news' fundamental content. Questionnaire research should avoid overlapping items that measure general optimism, risk tolerance and familiarity under different labels. When constructs are highly correlated, discriminant validity should be reported and alternative model specifications tested.

5.6 Mental accounting, regret and familiarity

Mental accounting describes the tendency to treat funds differently depending on their perceived source or purpose. An investor may view a dividend as “extra income” and take more risk with it than with salary savings, or separate investments into goal-specific buckets. Such categorisation may facilitate budgeting and discipline, but it can also create inconsistent risk decisions across a household portfolio. The relevant question is not

whether mental accounts exist, but whether the resulting choices are inconsistent with the investor's broader objectives and constraints.

Regret aversion may encourage investors to follow popular choices so that a bad outcome feels shared, or to delay decisions in order to avoid responsibility. Familiarity bias can lead investors to favour local companies, employers or brands they recognise. Familiarity may reduce information costs, but it can also create concentrated portfolios and an exaggerated sense of safety. The effects of these biases may be especially dependent on culture, household structure, access to formal advice and trust in institutions. Cross-country studies should not attribute differences to culture without measuring plausible mechanisms and considering market-level alternatives.

5.7 Financial literacy and experience

Financial literacy may improve understanding of diversification, compounding, inflation, risk and the costs of trading. It can help investors identify weak arguments and evaluate investment products. Yet financial knowledge is not equivalent to behavioural self-control. An investor can understand diversification in principle but still concentrate a portfolio because of familiarity, identity or a strong belief in personal skill. Financial literacy should therefore be modelled as a potential direct predictor, moderator or mediator only when the theory specifies the pathway.

Experience is similarly ambiguous. Repeated market exposure can improve knowledge and calibration, but it can also reinforce mistaken beliefs if investors attribute random gains to skill. Experience should be measured through duration, market cycles experienced, number of transactions, asset classes used and evidence of learning, rather than a single years-investing question. Financial literacy scales also vary, from objective knowledge questions to subjective self-assessment. Studies that use perceived literacy may inadvertently measure confidence, thereby blurring the distinction between knowledge and overconfidence.

5.8 Demographic and socioeconomic factors

Age, gender, income, education, occupation, household responsibilities and investment experience are frequently examined as correlates of behavioural tendencies. These characteristics should not be interpreted as deterministic explanations. A demographic

association may reflect differences in market access, risk capacity, financial socialisation, product availability or sample selection. For example, observed differences in risk-taking may partly reflect wealth and investment horizon rather than psychological disposition. Researchers should avoid broad claims about demographic groups when samples are local, non-random or unbalanced.

Socioeconomic context is especially important in emerging markets. Investors may use equities alongside property, gold, deposits, insurance and informal savings, so a stock-market decision cannot always be interpreted as the household's complete risk position. Constraints on emergency savings or access to formal financial advice may lead to choices that appear inconsistent with textbook portfolio theory but are reasonable given liquidity needs. Future studies should situate investor choices within household financial circumstances and not treat all retail investors as equally able to diversify.

5.9 Volatility, crises and market sentiment

Market stress can alter the salience of losses, increase uncertainty and make social signals more attractive. During crises, investors may rely more heavily on recent information, follow prominent commentators or react to sharp price movements. However, crisis periods also contain genuine changes in fundamentals and risk premia. A rise in correlated trading during a crisis does not by itself prove irrational herding. Studies should compare periods, control for market-wide information and distinguish common responses to the same signal from imitation.

Sentiment may operate as an antecedent, mediator or outcome. Optimism can increase risk-taking and trading; trading outcomes can then reinforce optimism or trigger regret. Cross-sectional surveys cannot easily establish the temporal direction of these relationships. Panel data, event studies, experiments and broker-record analyses can help establish temporal order. Where only cross-sectional evidence exists, the review should use associational language and avoid claims that bias “causes” performance outcomes.

5.10 Digital platforms and new information environments

Digital brokerage and mobile-first investing have lowered practical barriers to market participation. App notifications, simplified interfaces, rankings, gamified features and frictionless order entry can change how often investors monitor and trade. These tools may

improve access and reduce transaction costs, but they can also increase salience, impulsive decisions and short-term attention. The impact is likely heterogeneous: informed users may benefit from better execution and information, while inexperienced users may be more vulnerable to misleading cues.

The digital context raises a measurement challenge. A survey that asks whether an investor follows social media may not capture frequency, source quality, algorithmic exposure or actual use of recommendations. Future studies should measure platform use more precisely and, where ethically and legally possible, link self-reports with anonymised behavioural logs. Researchers should also distinguish platform effects from selection: individuals already inclined to trade may be more likely to adopt high-engagement applications.

5.11 What the literature can and cannot establish

Across the field, recurring associations between behavioural constructs and investment choices offer a useful basis for theory development. Nevertheless, the strength of inference differs sharply by design. Cross-sectional questionnaire studies are useful for exploring relationships among latent constructs, but they are vulnerable to common-method variance, reverse causality and unobserved confounding. Structural equation modelling can test whether a proposed covariance structure is consistent with data; it does not, by itself, prove causation. A statistically significant path coefficient does not establish practical importance, and model fit does not guarantee that the conceptual model is correct.

Observed trading records can strengthen behavioural measurement but introduce their own limits, including restricted account populations, missing household assets, selection into brokerage services and ambiguity in investor motives. Experimental studies can isolate mechanisms under controlled conditions but may not fully reproduce the stakes, constraints and emotions of real investment. Qualitative studies offer insight into meaning and context but should not be treated as prevalence estimates. The strongest synthesis respects these differences and uses triangulation rather than ranking methods in a simplistic hierarchy.

6. Proposed integrated framework

The review proposes an integrated framework in which behavioural biases influence retail investment decisions through both direct and mediated pathways. The focal biases are overconfidence, herding, anchoring, loss aversion/disposition tendency,

representativeness/availability, mental accounting and regret aversion. The main outcomes are investment intention, asset selection, diversification, trading frequency, buy/sell timing, risk-taking and realised performance. Risk perception and market sentiment are proposed as potential mediators. Financial literacy, investment experience, information quality, digital-platform exposure and market conditions are candidate moderators. Demographic and socioeconomic characteristics, transaction costs, liquidity needs and investment horizon are potential controls.

The framework is intentionally parsimonious at the mechanism level. It does not assume that every bias affects every outcome through every mediator. For example, overconfidence may be most directly related to trading frequency and perceived skill; anchoring may be more relevant to valuation and selling thresholds; and loss aversion may be more directly linked to the timing of loss realisation. Herding may operate through subjective norms and perceived information quality. Future tests should derive specific paths from theory and avoid estimating an overly saturated model in which all constructs are connected without justification.

A multilevel perspective is important because individual choices occur within market and platform environments. Investor-level traits may interact with country-level investor protection, market liquidity, disclosure quality or the prevalence of digital advice. When data permit, multilevel models can distinguish individual-level associations from country-level differences. A single-country convenience sample cannot identify country-level effects, even if the paper discusses national context. Cross-country conclusions require comparable measures, sufficient country coverage and careful handling of language and institutional differences.

7. Statistical analysis and evidence synthesis plan

7.1 Descriptive mapping

Once the final set of eligible studies is screened, the first analysis should describe the evidence base. Report annual publication counts, countries studied, sample types, research designs, sample sizes, biases examined, outcome categories and statistical methods. Counts should be calculated from the extraction sheet and accompanied by explicit denominators. A study that examines five biases should be counted once in the total number of studies

and may contribute to multiple bias categories; category percentages may therefore exceed 100% if multiple coding is permitted. This should be stated in table notes.

A country-by-bias matrix can identify geographic concentration and neglected contexts. A method-by-outcome matrix can show whether particular findings are disproportionately based on self-report scales or observed trading. These are descriptive evidence maps, not inferential tests. Do not treat the number of published studies as a measure of the true prevalence of a bias in a population.

7.2 Effect-size extraction

For each eligible quantitative result, extract the estimate, standard error or confidence interval, sample size, outcome definition, covariates and model specification. Where a correlation r is reported, Fisher's transformation can be calculated as $z = 0.5 \times \ln[(1+r)/(1-r)]$, with approximate sampling variance $1/(n-3)$. Correlations should be pooled only when they represent sufficiently comparable constructs and outcomes. Standardised mean differences may be used for comparable group contrasts, while odds ratios can be synthesised on the log scale. Regression coefficients should not be combined merely because they share a sign; unstandardised coefficients depend on variable scales and standardised coefficients may still differ in meaning across models.

Where a study reports multiple correlated estimates, a prespecified rule should select one estimate per construct-outcome combination or use a multilevel model/robust variance method. Choosing the smallest p-value or the largest effect is not acceptable. If effect estimates and uncertainty cannot be recovered, the study can contribute to narrative synthesis but should not be assigned an invented effect size.

7.3 Random-effects meta-analysis and heterogeneity

If a sufficiently homogeneous set of studies is available, random-effects meta-analysis can estimate an average association while allowing true effects to vary across studies. Report the pooled effect with a 95% confidence interval, the number of studies and participants, τ^2 , I^2 and Q . I^2 should not be interpreted as a universal quality score; it indicates the proportion of observed variability associated with between-study heterogeneity under the model. A high value may reflect genuine context variation, measurement differences or design limitations. A low value does not prove that studies are interchangeable.

Subgroup or meta-regression analyses may examine region, measurement type, sample type, financial literacy, market conditions or study quality, but they require enough studies and should be prespecified where possible. With few studies, subgroup estimates will be unstable and should be labelled exploratory. Country-level subgroup comparisons are particularly vulnerable to ecological fallacy when country is confounded with research method or publication outlet.

7.4 Robustness and bias assessment

Sensitivity analyses should compare alternative effect-size choices, fixed- versus random-effects assumptions where justified, exclusion of high-risk-of-bias studies, and leave-one-out results. If the evidence base is large enough, funnel plots and small-study-effect tests may be used cautiously. Publication bias tests have limited power when few studies are available, and funnel-plot asymmetry can arise from heterogeneity rather than selective publication. The review should also examine whether studies with null findings are less likely to report complete statistics.

7.5 What can be reported now

No verified study-level extraction workbook is available within this draft. Therefore, the paper does not report pooled correlations, p-values, confidence intervals, I^2 values, country counts or PRISMA totals as though they had been calculated. The tables below provide a structured template for transparent reporting and a qualitative synthesis of mechanisms. To complete the quantitative analysis, researchers must execute the searches, screen the records, extract the estimates and run the specified calculations. This distinction is essential for research integrity and journal review.

8. Tables for the manuscript

Table 1 summarises the principal biases, proposed mechanisms and common outcomes. It is a conceptual synthesis rather than a frequency count of included studies.

Table 2 distinguishes evidence types and their inferential strengths. Table 3 gives the extraction variables required for reproducible synthesis. Table 4 provides a statistical reporting template whose numerical cells must be populated from verified eligible studies. Table 5 maps likely sources of heterogeneity. Table 6 summarises risk-of-bias concerns.

These tables are designed to be retained in the article after the review team verifies that they accurately represent the final evidence set.

9. Discussion

The principal implication of the synthesis is that behavioural biases should be treated as interacting tendencies embedded in a decision environment, not as isolated personality defects. Overconfidence may increase activity, but the practical consequences depend on transaction costs, portfolio concentration, investor skill and market conditions. Herding may transmit misinformation, but it can also reflect social learning under information asymmetry. Loss aversion may delay selling, but liquidity constraints and rational expectations about recovery must be considered. The theoretical contribution lies in specifying these alternative pathways and identifying what kind of evidence can distinguish them.

A second implication concerns the difference between intentions and behaviour. Many studies rely on self-reported intentions or general perceptions. Intentions are meaningful outcomes, but they are not equivalent to actual transactions, portfolio performance or long-run wealth accumulation. A paper should not claim that a bias reduces returns unless returns are observed or the limitation is clearly stated. Research using transaction data should report net-of-cost outcomes and account for risk, while survey studies should report construct validity and acknowledge the gap between reported tendencies and observed actions.

Third, context should be integrated into explanations. Emerging markets are diverse in market maturity, regulation, financial inclusion, disclosure quality and access to professional advice. Treating them as a single category can obscure meaningful differences. Country comparisons should use explicit criteria for market classification and report within-country heterogeneity where possible. Researchers should also avoid interpreting national cultural characteristics as causes without direct measurement.

Fourth, financial literacy is best understood as a resource rather than a universal cure. Knowledge can support better assessment of risk and costs, but it may not overcome emotion, social pressure or incentives created by digital interfaces. Interventions should combine knowledge with decision aids, cooling-off mechanisms, clear risk

communication, portfolio-level displays and prompts that encourage investors to consider alternatives. The effectiveness of such interventions requires evaluation, not assumption.

Finally, digitalisation creates a changing research environment. Platform design can influence the timing, salience and frequency of decisions, while social media can amplify both high-quality analysis and unsupported claims. Research should assess the quality of information, not only the quantity of exposure. Regulators and platforms may need to consider transparency around sponsored advice, influencer conflicts, risk disclosures and engagement features. Investor education should teach users how to verify claims, recognise uncertainty and evaluate portfolio risk rather than simply warning that biases exist.

10. Implications

10.1 Implications for investors

Investors can reduce avoidable errors by writing down investment goals, time horizons and acceptable losses before trading; comparing a proposed trade with a diversified portfolio; checking whether a decision relies on a recent price, popular narrative or personal attachment; and recording the rationale for buying and selling. Pre-commitment rules can help investors avoid changing strategies in response to every short-term price movement. These practices do not remove risk and should not be interpreted as personalised financial advice.

10.2 Implications for financial educators and advisers

Education should go beyond definitions of behavioural biases. Practical exercises can demonstrate how purchase prices become anchors, how selective memory affects probability judgements, and how diversification changes portfolio risk. Advisers can ask clients to explain the evidence supporting a decision, compare base-rate information with a compelling story and evaluate the whole portfolio rather than a single “mental account.” Financial literacy programmes should measure outcomes in behaviour and decision quality, not only changes in knowledge scores.

10.3 Implications for platforms and regulators

Digital platforms should make risk, fees, concentration and conflicts of interest visible at the point of decision. Rankings and popularity indicators should not imply that an asset is

suitable for a particular investor. Sponsored recommendations and influencer relationships should be disclosed clearly. Regulators can support data access for independent research while protecting investor privacy. Interventions should be tested for unintended effects, including the possibility that excessive warnings reduce attention or that simplified interfaces conceal important risk information.

11. Limitations and future research

This manuscript has an important limitation: it is a review draft with a specified protocol and analytical framework, not a completed systematic review with verified database exports and a fully screened study set. Consequently, it does not claim a final included-study count, formal study-frequency statistics or pooled effect estimates. These must be added after the review is executed. A second limitation is the likely diversity of constructs and methods across the field, which may prevent meaningful pooling even after screening. A third is the uneven visibility of research across languages and publication outlets; database coverage and English-language restrictions may exclude relevant local evidence.

Future research should prioritise longitudinal and transaction-level designs, preregistered experiments, harmonised bias measures and transparent reporting of effect sizes with uncertainty. Researchers should distinguish self-reported confidence from calibration, social influence from market-level herding, and loss aversion from rational holding constraints. More work is needed on how platform design and online financial content influence decision pathways. Cross-country projects should use measurement-invariance tests and comparable sampling frames. Studies should also report null findings and share de-identified data or code where feasible.

12. Conclusion

Behavioural finance provides a valuable framework for understanding why retail investors may depart from fully deliberative decision-making. Overconfidence, herding, anchoring, loss aversion, the disposition effect, representativeness, availability, mental accounting and regret can shape how information is interpreted and how trades are initiated, delayed or abandoned. Their influence is conditional rather than universal. Financial literacy, experience, market uncertainty, information quality, digital platforms and household constraints can change both the likelihood and consequences of a behavioural tendency.

A credible synthesis must therefore go beyond counting studies or listing significant relationships. It should distinguish constructs, outcomes and research designs; assess the quality of evidence; and avoid treating association as causation. The integrated framework and statistical plan presented here can support that task. Before journal submission, the review team must execute and archive the database searches, screen records under documented criteria, verify all references, complete the evidence-extraction workbook and populate the PRISMA diagram and statistical tables from actual data. This final verification is not a cosmetic step: it is what turns a useful review framework into a reproducible systematic literature review.

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