



# International Journal of Research in Finance and Management

P-ISSN: 2617-5754  
E-ISSN: 2617-5762  
Impact Factor (RJIF): 5.32  
IJRFM 2025; 8(2): 613-619  
[www.allfinancejournal.com](http://www.allfinancejournal.com)  
Received: 18-09-2025  
Accepted: 15-10-2025

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## A Comprehensive Review of Heuristic Biases and their influence on Investor Behaviour in Stock Market Decisions

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**DOI:** <https://www.doi.org/10.33545/26175754.2025.v8.i2g.588>

### Abstract

Investor behaviour in the stock market is often shaped not just by logical evaluation but also by deep-seated psychological patterns known as heuristic biases. This review paper analyses how these biases—overconfidence, representativeness, anchoring, availability, and the gambler's fallacy— influence individual and institutional investment decisions. Drawing from recent empirical studies and behavioural finance literature, the paper explains how investors rely on mental shortcuts that simplify decision-making but often result in systematic errors such as mispricing, herding, and excessive volatility. The study also explores how these biases interact and amplify each other, producing compounding effects that influence both personal and market-level outcomes. Differences between developed and emerging markets are highlighted, showing that biases are more prominent where financial literacy is lower and information asymmetry is higher. The paper concludes by suggesting educational, technological, and policy-driven methods to help investors make more rational, evidence-based decisions, while offering directions for future behavioural finance research.

**Keyword:** Investor behaviour, heuristic bias, overconfidence, representativeness, anchoring, availability, gambler's fallacy, stock market

### 1. Introduction

Conventional financial theories such as the Efficient Market Hypothesis (EMH) and Modern Portfolio Theory (MPT) assume that investors behave rationally, have access to complete information, and always make decisions that maximise expected utility (Ritter, 2003) <sup>[28]</sup>. In practice, however, markets rarely function under such idealised assumptions. Investors often make decisions influenced by emotions, past experiences, and cognitive shortcuts. This has led to a growing recognition that markets are driven as much by psychology as by logic, resulting in the evolution of behavioural finance — a field that blends insights from economics, finance, and psychology to explain why investors deviate from rational models. The growing relevance of behavioural finance stems from its ability to explain real-world anomalies — such as speculative bubbles, excessive trading, and market crashes — that traditional models fail to address (Shiller, 2015) <sup>[33]</sup>. Over the years, researchers have identified various heuristic biases, or mental shortcuts, that guide human judgement under uncertainty. While these heuristics simplify complex financial decisions, they often lead to predictable and systematic errors. Common examples include overconfidence, anchoring, availability, representativeness, and gambler's fallacy biases.

Although behavioural finance has been widely studied, gaps remain in understanding how these heuristics interact and vary across different investor groups and market environments. Most studies have focused on Western economies, leaving emerging markets under-researched despite their growing importance (Kumar & Prince, 2023) <sup>[9]</sup>. Moreover, new empirical research suggests that these biases rarely act in isolation — rather, they combine to produce layered and compounding effects that shape overall market sentiment (Piotrowski & Bünnings, 2022; Ahmed, 2024) <sup>[26, 1]</sup>.

The aim of this paper is to present a comprehensive review of recent behavioural finance research (2020-2025) and to understand how key heuristic biases shape investor decisions across different market contexts.

The main objectives are to:

1. Examine how each bias influences investor judgement and portfolio decisions.
2. Explore how biases interact and amplify each other in dynamic markets.
3. Compare behavioural patterns across developed and emerging economies.
4. Recommend practical strategies to reduce bias-driven errors through education, technology, and regulation.

To achieve these objectives, the paper is organised as follows: Section 2 explains the theoretical foundations of behavioural finance; Section 3 reviews key heuristic biases; Section 4 analyses the combined effects of these biases; Section 5 discusses their impact on market performance; Section 6 proposes mitigation strategies; and Section 7 concludes with implications and future research directions.

## 2. Theoretical Background

### 2.1 Behavioural Finance: Moving Beyond Rationality

For many years, mainstream financial theories such as the Efficient Market Hypothesis (EMH) and the Capital Asset Pricing Model (CAPM) have been built on the idea that investors are perfectly rational, markets are efficient, and asset prices reflect all available information (Fama, 1970)<sup>[14]</sup>. These theories assume the existence of *homo economicus* — a perfectly logical investor who analyses every option objectively and always makes decisions that maximise expected utility (Markowitz, 1952)<sup>[21]</sup>. However, history and empirical data tell a different story. Financial markets often experience bubbles, crashes, and persistent mispricing, which cannot be explained by pure rationality (Shiller, 2015)<sup>[33]</sup>.

Behavioural finance emerged to bridge this gap between theory and reality. It acknowledges that human decision-making is influenced by cognitive limitations, emotions, and social pressures (Barberis & Thaler, 2003)<sup>[7]</sup>. Investors, rather than being purely rational, are “boundedly rational” — they make decisions based on limited information, experience, and mental shortcuts. These shortcuts, called *heuristics*, help simplify complex problems but can lead to systematic judgment errors (Kahneman & Tversky, 1979)<sup>[18]</sup>.

Behavioural finance integrates insights from psychology into economic thinking and recognises that factors such as overconfidence, fear, optimism, regret, and herd mentality influence financial choices. This perspective helps explain why real-world investors may continue holding losing stocks, chase short-term gains, or follow market rumours — behaviours inconsistent with traditional models (Shefrin, 2007)<sup>[32]</sup>. In short, behavioural finance provides a more realistic view of financial markets by considering both logic and psychology.

### 2.2 Heuristics in Financial Decision-Making

Heuristics are simple mental rules people use to make decisions quickly, especially under uncertainty or when time and information are limited (Gigerenzer & Todd, 1999)<sup>[15]</sup>. In stock markets, where investors face enormous data and constant volatility, heuristics act as cognitive shortcuts to make sense of complex choices. However, while they reduce cognitive effort, they also introduce predictable

biases (Tversky & Kahneman, 1974)<sup>[36]</sup>.

Prospect Theory, introduced by Kahneman and Tversky (1979)<sup>[18]</sup>, offers a foundation for understanding how investors perceive risk and make choices under uncertainty. The theory shows that people value gains and losses differently — losses feel more painful than equivalent gains feel pleasurable — leading to risk-averse or risk-seeking behaviour depending on framing. This psychological perspective explains why investors may sell winning stocks too early or hold onto losing ones too long, expecting a reversal.

Several heuristics are particularly relevant to investment behaviour:

- **Overconfidence**, where investors overestimate their ability to interpret information or predict outcomes.
- **Representativeness**, where individuals judge probabilities based on stereotypes or recent patterns.
- **Anchoring**, where initial figures such as past prices influence later judgments.
- **Availability**, where easily recalled or recent information is overemphasised.
- **Gambler’s fallacy**, where investors wrongly believe random events will “balance out” over time.

Each of these heuristics has measurable effects on investment decisions, leading to market inefficiencies, overtrading, and asset mispricing. For instance, overconfidence can drive excessive trading and higher risk-taking (Barber & Odean, 2001)<sup>[6]</sup>, while anchoring leads to slow adjustment to new information (De Bondt & Thaler, 1985)<sup>[1]</sup>.

The use of heuristics in the financial analysis offers more details on the behaviour of investors and makes sense of the phenomena that were not possible with classical finance. Being aware of such biases is not only a requirement to an investor but also regulators, advisors, and policymakers wishing to encourage market stability and rational investment (Shiller, 2015)<sup>[33]</sup>.

## 3. Literature Review: Key Heuristic Biases Influencing Investor Decisions

### 3.1 Overconfidence Bias

Overconfidence bias is the propensity of an investor to exaggerate his or her capabilities, knowledge or the accuracy of his or her forecasts. It makes individuals think that they are superior to the rest in terms of recognizing the market trends or selecting the appropriate stocks. Such false sense of security is one of the main reasons why people engage in trading all the time, take bigger stakes and ignore opposing information (Odean, 1998)<sup>[24]</sup>.

Barber and Odean (2001)<sup>[6]</sup> discovered that overconfident investors buy and sell much more than average, but they do not realize the net returns as they make poor timing and transaction cost. These investors too fail to diversify well and underestimate the risks and this contributes to concentrated portfolios and increased volatility (Glaser and Weber, 2007)<sup>[16]</sup>.

Another typical case is the dot-com bubble when numerous investors overestimated their knowledge of technology companies and thought that the prices would continue to grow indefinitely. Equally, the institutions failed to mitigate risks ahead of the 2008 financial crisis due to excessive

confidence in mortgage-backed securities (Shah & Butt, 2024) <sup>[31]</sup>.

Basically, overconfidence bias gives people an illusion of power and channels them to engaging in risky behaviour, which makes markets less efficient and leads to asset mispricing.

### 3.2 Representativeness Bias

Representativeness bias occurs when investors judge the likelihood of an event by how closely it resembles a familiar pattern, ignoring statistics and probabilities (Tversky & Kahneman, 1974) <sup>[36]</sup>. For example, investors may believe that a company performing well recently will continue to do so indefinitely, even if fundamentals don't support such optimism.

This bias often fuels momentum investing — chasing “winning” stocks — or contrarian investing — expecting “losers” to rebound — both of which can cause forecasting errors. Investors tend to assume short-term trends represent long-term reality, leading to irrational optimism or pessimism (Barberis, Shleifer, & Vishny, 1998) <sup>[8]</sup>.

The tech boom of the 2010s is one example, where investors poured money into start-ups simply because they resembled earlier success stories. Representativeness encourages stereotypes and makes investors rely on superficial similarities instead of data-driven evaluations.

### 3.3 Anchoring Bias

Anchoring bias arises when investors rely too heavily on an initial piece of information — such as a past stock price, analyst forecast, or index level — as a reference point for future decisions (Tversky & Kahneman, 1974) <sup>[36]</sup>. Once the “anchor” is set, investors fail to adjust adequately to new information, even when circumstances change.

For instance, an investor might continue to believe a stock is “undervalued” simply because it has fallen from its previous peak, ignoring evidence that the company's fundamentals have weakened. Similarly, traders might base expectations on outdated benchmarks or news. This tendency slows market reactions to new data and reduces price discovery efficiency (Epley & Gilovich, 2001) <sup>[13]</sup>.

Anchoring affects both individual and institutional investors. It can lead to “sticky prices” and create resistance levels in markets. Studies show that earnings forecasts and analyst recommendations often act as anchors for investor sentiment (Barberis *et al.*, 1998; Shah & Butt, 2024) <sup>[8, 31]</sup>.

### 3.4 Availability Bias

Availability bias refers to the tendency of investors to base decisions on information that is easily available or memorable, rather than on complete and objective analysis (Tversky & Kahneman, 1973) <sup>[35]</sup>. Dramatic news, recent events, or emotionally charged stories often dominate perception, even if they are statistically rare.

For example, after a major market crash, investors may become excessively cautious, assuming another downturn is imminent. Conversely, during a bull market, recent positive news may make investors overly optimistic. Tetlock (2007) <sup>[34]</sup> demonstrated that media sentiment significantly influences trading behaviour, where negative news triggers widespread selling even without fundamental justification. Availability bias contributes to short-term volatility and

herd behaviour. Because financial media continuously amplifies attention-grabbing stories, many investors make impulsive trades, reacting to noise rather than meaningful signals.

### 3.5 Gambler's Fallacy

The gambler's fallacy is the false belief that random events are self-correcting — that a loss streak must be followed by a win or vice versa (Croson & Sundali, 2005) <sup>[11]</sup>. In markets, this manifests when investors expect a reversal in price trends simply because a stock has been moving in one direction for too long.

For example, after a series of market declines, investors may start buying prematurely, assuming prices “must bounce back.” Conversely, after prolonged rallies, they might sell too early out of fear of an imminent fall. This flawed reasoning can cause premature entries and exits, intensifying volatility (Shah & Butt, 2024) <sup>[31]</sup>.

Research shows that the gambler's fallacy is particularly common among retail investors in emerging markets, where financial education levels are lower (Ahmed, 2024) <sup>[1]</sup>. Combined with other biases such as representativeness or availability, it can lead to speculative bubbles and unnecessary losses.

## 4. Integrated Framework — Interactions and Compounding Effects

Heuristic biases do not tend to function alone in the real market. They interact, and enrich each other, and combine to produce intricate patterns of behaviour that drive investors even further out of rational decision-making (Shah and Butt, 2024) <sup>[31]</sup>. When multiple biases act in concert they constitute feedback loops and amplify the individual sources of error in judgment and produce wider dysfunction in a market.

As an example, a confident investor can anchor on a starting value, and he or she would not revise this value even where new information is in conflict with the pre-existing opinion. Meanwhile, the representativeness bias will cause them to perceive the recent price change as a vindication of that anchored opinion. Lastly, availability bias is used to make sure that the final decisions are guided by information that is readily remembered or that which has been widely discussed. This combination is causing over-optimism, herd-following, and the mispricing (Barberis and Thaler, 2003) <sup>[7]</sup>.

Empirical studies also indicate that the combination of various heuristics results in market anomalies that include price momentum, overreaction, and bubbles (Piotrowski and Bunnings, 2022) <sup>[26]</sup>. As an example, in the long-lasting bull markets, the overconfidence drives the increase in trading; representativeness causes the further rise; and availability bias contributes to positive sentiment by media stories. When the reality finally starts deviating according to expectation, panic selling commences which turns the same biases against itself.

The second popular trend is the interplay of fallacy and representativeness bias of gamblers. The long period of such price movements makes investors assume that there is a reversal and any slight reverse change is considered as evidence to that assumption. This will result in early trading and steep volatility moves (Croson and Sundali, 2005) <sup>[11]</sup>.

These compounding effects demonstrate that the behaviour of investors cannot be explained by single-bias explanations. The integrated behavioural paradigms, including those developed by Shiller (2015)<sup>[33]</sup> and Barberis and Thaler (2003)<sup>[7]</sup>, provide a larger perspective, linking cognitive, emotional, and social aspects of market activity. The awareness of these inter-relationships aids regulators, fund managers and educators to formulate interventions that do not only focus on a particular bias but on the whole set of behavioural inclinations that influence investors. Concisely, the collaborative effort of the heuristics only aggravates irrational behaviour and adds to chronic inefficiency. The knowledge of this integrated framework will thus be instrumental in enhancing prediction models and developing behavioural policies that will stabilise markets without limiting healthy risk-taking.

## 5. Impact of Heuristic Biases on Stock-Market Outcomes

The impact of heuristic biases on financial markets is deep, long-term, and long-lasting. They influence the process of selection of assets by investors themselves to the overall reaction of markets to information. Their interplay creates an unproductive pricing, herding and excessive volatility which finally question the forecasts of the traditional market theories (Barberis and Thaler, 2003)<sup>[7]</sup>.

### 5.1 Asset Allocation and Mispricing

Among the most noticeable outcomes of behavioural biases, one may single out their impact on the distortion of assets allocation.

As an example, due to overconfidence, investors tend to think they are better at outperforming the market by trading too much or investing their portfolio on the stocks they are familiar with. This results in low diversification and the exposure to unsystematic risk is high (Barber and Odean, 2001)<sup>[6]</sup>.

Likewise, anchoring bias makes investors not to alter their valuation benchmarks as the market conditions vary. They cling to old reference points thereby leading to delayed responses to new information and the mispricing is also delayed (Epley and Gilovich, 2001)<sup>[13]</sup>.

On the contrary, availability bias increases overreacting to new or vivid news. When investors pay excessive attention to new headlines or rumors, the prices of stocks fluctuate drastically and form temporary peaks and falls.

On the whole, these biases cause asset mispricing, i.e. stock prices do not reflect their intrinsic values in the long-term.

### 5.2 Herding and Market Bubbles

When there are numerous investors holding the same prejudices, their overall action will give herding, a mode in which individuals act in keeping up with the actions of others rather than basing their behaviour on their own judgement.

Herding is intensified in turbulent or unpredictable situations when people tend to be secure in a crowd than when they are alone. The behaviour of such groups creates speculative bubble whereby the prices of assets soar much higher than they should, before they burst out (Bikhchandani and Sharma, 2001)<sup>[9]</sup>.

The prototypical instance is the dot-com bubble (1999-2000), as well as the global financial crisis (2008). In both

situations, representativeness and availability biases with overconfidence support drove investors to believe that current growth patterns would persist. Herd psychology and media optimism generated self-reinforcing buying and selling cycles resulting in extreme mispricing and consequent crashes (Shiller, 2015)<sup>[33]</sup>.

## 5.3 Differences Between Individual and Institutional Investors

Empirical studies highlight that behavioural biases affect both individual and institutional investors, though in different ways. Individual investors often display stronger emotional biases such as overconfidence and availability, resulting in excessive trading and suboptimal portfolios.

Institutional investors, though generally better informed, are not immune. They may exhibit herding behaviour due to career concerns, benchmark pressures, or fear of missing out (Paul, 2023)<sup>[25]</sup>. During market stress, fund managers tend to follow similar strategies, increasing systemic risk. However, institutional investors typically show better diversification and analytical discipline, which helps them partially offset these biases (Barberis & Thaler, 2003)<sup>[7]</sup>.

## 5.4 Developed vs. Emerging Markets

The magnitude of behavioural biases also differs between developed and emerging markets.

In emerging economies, limited financial literacy, lower transparency, and higher uncertainty make investors more prone to heuristic thinking (Raut, 2018)<sup>[27]</sup>. Studies from India and Nepal, for example, reveal that representativeness and availability biases have a stronger influence on investor decisions compared to developed economies, explaining up to 74% of decision variance in some analyses.

Moreover, emerging markets experience more herding and speculative behaviour because of information asymmetry and volatility. This results in frequent bubble formations and unstable price movements. Policymakers in these markets therefore have a greater responsibility to improve investor awareness and strengthen disclosure systems (Chaudhary, 2025)<sup>[10]</sup>.

In contrast, developed markets show more moderate bias effects, as advanced analytics and regulatory safeguards reduce emotional influence. Nonetheless, even sophisticated investors in these economies can be swayed by optimism, fear, and peer pressure during extreme conditions, proving that behavioural finance is universally relevant.

## 6. Strategies to Mitigate Biases

The mitigation of the impact of heuristic influences on the process of investment needs a combination of education, technology, and policy facilitation. Biases are formed as a result of human psychology and, therefore, they cannot be eradicated. Nevertheless, they can be minimized through awareness creation, promotion of disciplined processes, and use of modern tools that can foster rational decision-making (Mahmood *et al.*, 2024)<sup>[20]</sup>.

### 6.1 Educational Approaches

Financial education is the best and the first method of curbing the behavioural biases. By having the knowledge of the impacts of cognitive shortcuts on their decision making, investors can identify and manage them. Financial literacy

initiatives must not solely rely on theoretical learning but emphasize on behavioural awareness practical learning—that is, educating investors to be skeptical of their desires, to think critically, to develop long-term views (Anwar and Qosidah, 2025) <sup>[4]</sup>.

Empirical evidence indicates that financial literacy to a considerable extent reduces availability and anchoring biases and does not have a substantial impact on emotional biases such as overconfidence (Safryani *et al.*, 2020) <sup>[29]</sup>. Hence, the training programs ought to be a blend of technical training with psychological enlightenment to enable the investors to consider their own attitudes towards risk and uncertainty.

Educational programs may be established using workshops, internet-based courses, and investor-protection campaigns by the regulatory authorities, including SEBI and AMFI, in India. Even the financial institutions and Universities should consider the inclusion of behavioural finance in their learning curriculum to equip future investors and professionals with the real life challenges.

## 6.2 Technological Solutions

Technology is progressively becoming significant in minimizing behavioural bias. Robo-advisors (digital platforms that apply algorithms to manage portfolios) represent a way that enables investors to make more objective choices, eliminating the role of emotions (Sayeed *et al.*, 2025) <sup>[30]</sup>. Robotized mechanisms are more diversified, rebalanced, and assigned assets logically with reference to risk profiles as opposed to intuition (Anwar, 2025) <sup>[3]</sup>. While robo-advisors improve discipline and accessibility, challenges remain. Many investors are still hesitant to trust automated platforms without human guidance (Athota *et al.*, 2023) <sup>[5]</sup>. Hybrid advisory models, combining artificial intelligence with personal financial advisors, appear to be the most effective solution for maintaining both objectivity and emotional understanding. Fintech applications, AI-driven trading alerts, and personalised risk dashboards can also help investors identify behavioural patterns and correct them in real time.

## 6.3 Policy and Regulatory Measures

Government and regulatory agencies have a crucial role in designing frameworks that promote rational investor behaviour. The IOSCO (2019) report recommends integrating behavioural insights into investor-protection strategies.

For example, regulators can use *nudge techniques* — such as default investment options, simplified disclosures, and clear communication — to guide investors towards better decisions without restricting their freedom (OECD, 2017). Policies that encourage transparency, penalise misleading information, and promote digital literacy also help reduce information asymmetry and prevent herd-driven market swings.

Mandatory “cooling-off” periods before high-risk investments, and structured financial-advisory certifications can further protect retail investors from impulsive or misinformed decisions.

## 6.4 Role of Financial Advisors

Professional financial advisors act as the bridge between

technical analysis and investor psychology. Advisors trained in behavioural finance can identify cognitive traps in client decisions, help set realistic expectations, and promote disciplined investment habits (Athota *et al.*, 2023) <sup>[5]</sup>.

However, advisors themselves are not free from biases. Continuous professional development programs that include behavioural training can help them remain objective.

In recent years, hybrid advisory models — where AI-driven tools assist human advisors — have gained traction because they combine the precision of algorithms with the empathy of human judgment (Ahmad *et al.*, 2025) <sup>[2]</sup>.

This partnership ensures better portfolio management while maintaining investor trust, particularly in countries like India, where personal relationships still play an important role in financial advice.

## 6.5 Integrated Mitigation Framework

No single strategy can completely eliminate biases; therefore, a combined approach works best.

Education improves awareness, technology promotes discipline, and regulation ensures protection.

Together, they create an ecosystem where investors can make better-informed and less emotionally influenced decisions (Northern Trust, 2024).

A practical integrated model should include:

- Regular investor-awareness campaigns,
- AI-supported monitoring systems for bias detection,
- Behavioural training for advisors and analysts, and
- Transparent communication standards across financial institutions.

Ultimately, the goal is not to eliminate every bias but to create systems that reduce their harmful effects while retaining adaptive human intuition in uncertain markets.

## 7. Conclusion and Future Research Directions

The present review paper has discussed how the heuristic bias (e.g., overconfidence, representativeness, anchoring, availability, and the gambler fallacy) affects investor behaviour and market performance. As discussed, these shortcuts in the mind assist investors to simplify complicated decisions, but in many cases, they result in systematic failures to be rational. These kinds of biases are not only individual but they build up in market participants leading to inefficiencies such as mispricing, herding and over volatility.

The article points out that over confidence leads to excessive trading and concentrated portfolios; representativeness and availability biases lead to a speculative trend and sentiment driven cycle; anchoring bias delays markets response to new information; and cancelling the fallacy leads to the delays in decision making by creating false optimism of reversals among the gamblers. These biases on an individual basis and in aggregate reduce market efficiency and are the explanation behind numerous anomalies that cannot be explained in the conventional financial theories.

The disparity between the developed and the emerging markets indicates that the implications of heuristic are situational. In young economies like India, where the level of financial literacy is less and information asymmetry is greater, the influence of behaviour is more prominent. This

highlights the significance of specific interventions, especially educational, technological and regulatory ones, in order to decrease irrational decision-making.

It is also discovered in the study that biases are impossible and even undesirable to be totally removed because such heuristics can assist investors in handling the uncertainty sometimes. Hence, mitigating and not eliminating should be the target, and awareness, process discipline and decision-support tools should be the focus. Such strategies as behavioural training programs, hybrid robo-advisory service and easier regulatory framework may make a big difference in the negative effect of biases and allow healthier market participation.

Future studies ought to go beyond the static models and examine the dynamics of the interaction of a number of biases within time. Applications of sophisticated data analytics, neurofinance and experimentation methods can assist in capturing real-time decision making and enhancing predictive accuracy. A comparison of investor groups (e.g., retail and institutional, domestic and international) would shed some more light on contextual differences in the strength of bias.

Additionally, with artificial intelligence integrated into financial operations, the investigation of the ways in which AI-based systems could identify or even inherent human biases is a promising research area. The resulting knowledge of these interactions will enhance the breadth of behavioural finance as a field and improve its usefulness in policy formulation, investment management and financial education.

To sum up, heuristic biases deserve to be identified and eliminated because of not only enhancing personal investment performance but also ensuring the stability and efficiency of financial markets. Incorporating the knowledge in the fields of psychology, economics, and technology, investors and regulators will be able to step a little bit closer to a more balanced and reasonable investment environment.

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