

Exploration of Confirmation Bias and Its Effects on Financial and Marketing Decisions

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Abstract:

In a globalized, information-rich era, individuals' investment and consumption decisions are increasingly shaped by psychological and social factors. Confirmation bias, a pervasive cognitive distortion, causes individuals to favor information that supports their beliefs while ignoring contradictory evidence, thus influencing both judgment and behavior. This paper reviews the cognitive foundations and evolution of confirmation bias, examining its effects in financial decisions and advertising. Individually, it drives selective processing and emotional reinforcement, causing overconfidence, overtrading, and irrational behavior. At the group and market levels, social learning and algorithmic amplification intensify herd behavior and price volatility. In advertising, marketers leverage confirmation bias through message consistency, targeting, and contextual cues to influence consumer attitudes and memory. The results demonstrate that to mitigate these effects, individuals should broaden information sources and critical thinking; organizations should use structured analysis, build diverse teams, and foster critical evaluation; society should promote media literacy, policy regulation, and tech-based fact-checking. By integrating these strategies, confirmation bias can be better managed, improving investor behavior, consumer decisions, and information ecosystem governance.

Keywords: Confirmation Bias, Investor Behavior, Consumer Psychology, Decision-Making Interventions, Information Ecosystem

1. Introduction

In the context of financial globalization and rapid information flow, individuals face increasingly com-

plex investment and consumption decisions, and their rational choices are often influenced by psychological and social factors. As a typical cognitive

bias, confirmation bias is widely regarded as a key factor shaping information processing and judgment, and has received extensive attention in psychology and behavioral economics. However, its mechanisms and potential risks across different contexts remain underexplored, especially where finance and advertising intersect. In order to better understand the mechanisms behind individuals' irrational decision-making in complex information environments, this paper investigates confirmation bias through a review of its cognitive basis and evolution. In particular, it examines how this bias typically appears in investment behavior, market dynamics, and advertising, and discusses its practical impacts on economic activity and consumer psychology. As such, the study aims to clarify how confirmation bias shapes investors' information filtering and risk perception, contributes to collective irrationality, and is leveraged or amplified in advertising design, while also assessing the feasibility of interventions and mitigation strategies in emerging information contexts. By combining literature review with representative case analyses, this paper seeks to offer theoretical insights and practical guidance for improving investor behavior, regulating advertising content, and strengthening information ecosystem governance.

2. Theoretical and Cognitive Foundations of Confirmation Bias

2.1 Early Conceptualization and Experimental Discovery

As a typical cognitive bias, confirmation bias was first revealed by Wason in 1960 through a classic experiment, which demonstrated the systematic irrational tendency in human hypothesis testing. In the number sequence task he designed, participants were asked to infer the underlying rule of the sequence "2-4-6." Despite the actual rule being any ascending sequence, most participants tended to repeatedly seek evidence supporting their own hypotheses instead of searching for disconfirming evidence. This experiment not only demonstrated people's tendency for selective information search during hypothesis testing but highlighted the profound impact of bounded rationality on reasoning processes [1]. Since then, this experimental paradigm has been widely cited and refined, and it has gradually expanded into fields like cognitive psychology and behavioral economics, which makes it a crucial theoretical foundation for explaining how individuals deviate

from rational expectations in complex contexts [2]. This early line of research provided a robust basis for later investigations into the mechanisms of confirmation bias from diverse disciplinary perspectives.

2.2 Modern Definitions and the Evolution of Core Mechanisms

Based on early experiments and conceptual foundations, contemporary scholars have systematically defined and expanded the theoretical connotation and operating mechanisms of confirmation bias, further revealing its multidimensional impact across various contexts. The tendency to reinforce existing beliefs while ignoring contradictory evidence during information acquisition, interpretation, and memory is now widely defined as confirmation bias, a typical form of cognitive dissonance [3].

This bias involves passive cognitive filtering and manifests as motivated reasoning at the emotional and motivational levels, indicating that individuals deliberately process information selectively to protect their self-image or maintain group identity [4]. For example, by promoting overconfidence and distorting reasoning, confirmation bias hinders the correction of false beliefs and amplifies judgment errors, further intensifying belief polarization [3]. Moreover, existing studies show that, with the diversification of information channels and the rise of algorithmic recommendation systems, confirmation bias is increasingly amplified in social interactions and group discussions, thereby exerting a profound impact on information-dependent fields like financial markets, public opinion, and advertising [4]. Thus, identifying the core mechanisms of confirmation bias makes it possible to explain its real-world impact and to design targeted strategies to reduce its influence.

3. The Manifestation of Confirmation Bias in Financial Decision-Making

3.1 Investment Decision Biases at the Individual Level

At the individual level, confirmation bias significantly affects how investors search for, interpret, and act on information, often causing deviations from rational expectations when facing uncertainty or new evidence. Existing research indicates that investors often seek information that confirms their beliefs and ignore contradictory evidence, particularly when investing in volatile assets such

as stocks, mutual funds, and cryptocurrencies [5]. For example, in a mutual fund selection experiment, participants who had already chosen a higher-risk actively managed fund were more likely to click on articles that supported their initial choice when presented with conflicting information sources, and then maintain or even increase their investment accordingly. This deliberate selective exposure to information illustrates the operational manifestation of confirmation bias in individual investment decisions [3]. This bias functions not merely as passive filtering but as an active cognitive process driven by the brain's reward circuitry. When investors encounter information that confirms their expectations, dopamine release in the reward centers reinforces this selective processing, increasing the likelihood that they will disregard contradictory signals [6]. By boosting overconfidence, this bias encourages excessive trading, which increases portfolio volatility and the likelihood of losses. Therefore, at the individual level, confirmation bias drives irrational investment behavior through selective information processing and emotional reward.

3.2 Amplification Effects on Market Dynamics at the Group Level

At the group level, confirmation bias intensifies via social learning, cascading information effects, and the convergence of opinions, producing self-reinforcing herd behaviors that amplify systematic price swings in financial markets [3]. When many investors rely on similar information sources, they are more likely to affirm one another's views than to critically reassess them. This collective confirmation effect can cause asset prices to deviate notably from their intrinsic values. For instance, during the tulip mania in 17th-century Holland, speculators repeatedly reinforced positive narratives about the high-value transactions of rare tulip bulbs. Through word-of-mouth and auction feedback, the public mutually confirmed their inflated expectations, thus driving tulip prices to soar until the bubble inevitably collapsed [7]. In modern markets, cryptocurrency trading is a notable example, as its price dynamics are highly vulnerable to the echo chamber effects created by social media and algorithmic recommendations. In online communities, investors' exposure to like-minded opinions is amplified by algorithms that recommend similar content according to click patterns, forming an information bubble [2]. By reinforcing group-level confirmation bias, this mechanism accelerates the spread of speculative sentiment and thereby heightens market procyclicality and price

volatility [4]. Thus, confirmation bias, originating as an individual-level cognitive distortion, is magnified through group-level information networks and social psychological effects, profoundly shaping the irrational dynamics of financial markets and adding complexity to regulation and risk prevention.

4. The Application of Confirmation Bias in Advertising Strategies

4.1 Information Consistency Design and Target Audience Matching

In advertising practice, confirmation bias is systematically leveraged via consistent message design and precise audience targeting to maximize acceptance of attitude-congruent information [8]. Prior studies have shown that when individuals encounter information consistent with their preexisting beliefs, they tend to perceive it as more credible, useful, and persuasive, while deliberately ignoring or filtering out contradictory information [9]. To exploit this tendency, advertisers typically invest substantial resources upfront in psychological profiling and interest-based segmentation, ensuring that advertising content closely matches the audience's existing values and preferences [8]. For instance, major fast-moving consumer goods companies often use social media data and surveys to identify consumer preferences for emotional narratives, such as family bonds, friendship, or success symbols, and embed these into advertising scripts to trigger selective attention and active processing from the outset. More importantly, this matching strategy extends beyond cognitive consistency and is closely tied to consumers' self-identity and social identity. Research has demonstrated that when advertising content resonates with an audience's social identity or sense of group belonging, people are more likely to accept the message uncritically due to in-group cohesion motives, while engaging in less rational scrutiny [10]. For instance, premium product advertisements often emphasize "elite circles" or "status symbols," encouraging consumers to align their purchases with a desired social identity, which reinforces the impact of confirmation bias on attitudes and behaviors. As such, the integration of precise audience targeting with symbolic messaging design constitutes the primary mechanism through which modern advertising systematically exploits confirmation bias.

4.2 Contextual Cue Reinforcement and Memo-

ry Distortion Mechanisms

Beyond message design, advertising strengthens confirmation bias by utilizing contextual triggers and memory reinforcement, which prioritize the retention and recall of information that aligns with consumers' pre-existing beliefs [5]. In situations where familiar or emotionally engaging contexts are present, such information tends to create distorted memories that bolster positive views. For example, after specific brand visuals were embedded during UFC (Ultimate Fighting Championship) events, 66% of participants mistakenly recalled Tapout as the official sponsor, even though they had no prior exposure to the brand. This exhibits how contextual cues interact with existing cognitive structures to amplify memory bias [11]. In addition, contextual cues initially form within specific settings and are subsequently reinforced through repeated exposure and recurrence across multiple contexts. For instance, in some areas, television advertisements utilized frequent exposure and focused messaging to strongly connect brands with particular cultural motifs, thus enhancing brand recall and influencing consumer buying choices. In digital environments, this process increasingly depends on algorithmic recommendations and user profiling. By tracking browsing and interaction patterns, platforms deliver ads that align with users' existing views, amplifying "cognitive echo chambers" through consistent exposure and feedback. This process amplifies emotional connection and reinforces selective memory retention [12]. Thus, contextual cue reinforcement and memory consolidation extend confirmation bias in advertising and, combined with precise audience targeting and message consistency, form key mechanisms shaping consumer cognition.

5. Multi-Level Approaches to Reducing Confirmation Bias

5.1 Individual-Level De-biasing Methods

Frequently driven by selective exposure, confirmation bias drives individuals to favor information that supports their beliefs and ignore contradictory views. This bias is amplified in environments like targeted advertising and algorithm-driven content, where information is curated to strengthen pre-existing beliefs. To reduce its impact, individuals should broaden their information sources and seek diverse perspectives to avoid reinforcing biases. This approach ensures that individuals are less likely to overlook important information that contradicts their views.

Besides, it is crucial to boost self-awareness and critically assess one's judgments, as overconfidence can amplify confirmation bias and result in faulty decisions. For example, individuals should question whether the price of a product truly aligns with its value, rather than simply accepting initial impressions. By recognizing cognitive biases such as the "anchoring effect," individuals can make more informed and rational decisions. In addition, cultivating critical thinking skills is vital for overcoming the limitations of confirmation bias. Encouraging a habit of analyzing situations from multiple perspectives allows individuals to avoid cognitive tunnel vision. This can be developed through practices such as debate, counterfactual thinking, and decision journaling, which fosters better logic, reasoning, and evidence evaluation. By strengthening these skills, individuals can break free from fixed viewpoints and engage in more thoughtful and objective decision-making [1].

5.2 Organizational and Institutional Interventions

By leveraging a variety of viewpoints, organizations can effectively minimize confirmation bias in their decision-making processes. The decision-making environment, influenced by group dynamics and information filtering mechanisms, can either exacerbate or mitigate biased thinking. Structured methods, such as the Analysis of Competing Hypotheses (ACH), help minimize confirmation bias by evaluating multiple potential explanations against available evidence [1]. This approach includes comprehensively collecting evidence, using a hypothesis-evidence matrix to assess consistency, and continuously evaluating hypotheses and evidence to ensure logical consistency, thus reducing the impact of inherent assumptions. Moreover, team composition and culture are pivotal determinants. Despite their experience, experts may be wedded to familiar patterns, which consolidates existing biases. And the formation of diverse teams that integrate minority perspectives and encourage open discussions can prevent group polarization and reduce the likelihood of team members reinforcing each other's biases. Meanwhile, transparent information sharing, decision review, and responsibility rotation further break down silos and homogeneity. Training and culture matter equally. By offering targeted education, organizations can raise awareness of cognitive biases, foster critical thinking, and incentivize innovation and constructive dissent. Besides, technology provides valuable support by using AI-driven

decision tools and big data analytics to detect bias, offer alternative viewpoints, and highlight overlooked information. These organizational and technological interventions create a more balanced, evidence-based decision-making environment, ensuring that decisions are informed by diverse perspectives rather than constrained by confirmation bias.

5.3 Societal and Policy-Level Systemic Regulation

At the societal level, confirmation bias is influenced by the broader environment, including public opinion, media systems, and information channels like social media algorithms. These factors can amplify group-level biases by filtering and prioritizing information that aligns with prevailing views. As such, policy interventions and regulatory frameworks are essential. In this context, legislation that enforces transparency, combats misinformation, and sets standards for responsible information dissemination can reduce the systemic amplification of biased thinking. Moreover, public education plays a key role in enhancing society-wide resilience to confirmation bias. The promotion of critical thinking from an early age, which encourages students and citizens to consider issues from multiple perspectives, can reduce impulsive responses to incomplete or one-sided information. Furthermore, the implementation of media literacy programs further equips individuals to identify misleading narratives, evaluate sources critically, and form a more comprehensive understanding of facts. In addition, the collaboration between different sectors is of utmost importance. Governments, media institutions, academic bodies, and independent organizations can collectively design frameworks for the systematic review, reporting, and correction of misinformation, ensuring that misleading content is addressed efficiently and effectively. Given that technology can both exacerbate and mitigate bias, it is essential that AI systems, algorithmic content recommendations, and online platforms adhere to established technical standards and ethical guidelines. This can mitigate the spread of confirmation bias and promote the availability of credible fact-checking resources. Through the integration of education, policy, institutional oversight, and technology, societies can foster a resilient framework that enables individuals to make well-informed decisions and counteract cognitive biases.

6. Conclusion

In decision-making within the finance and advertising

sectors, confirmation bias plays a crucial role, frequently leading to irrational behavior. In finance, investors favor information that supports their beliefs while ignoring contradictory evidence, which exacerbates market volatility and bubble risks. In advertising, companies leverage confirmation bias by targeting specific audiences and designing consistent messages that impact consumers' judgments while reinforcing their pre-existing beliefs. This study emphasizes that by actively exploring diverse information and fostering critical thinking, individuals can effectively reduce the negative effects of confirmation bias, leading to more rational and objective decision-making. However, there are some limitations. It primarily focuses on these two areas and does not address its effects in other fields (such as politics or healthcare), limiting the generalizability of the conclusions. Additionally, some of the cases are from earlier periods, which may not fully apply to the current context, and the reliance on secondary data introduces potential issues of incomplete information or interpretive bias. Future research could expand into other areas, explore the amplification of confirmation bias in new technological environments, and evaluate the effectiveness of various interventions, particularly in different cultural contexts.

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