

From Rationality to Reality: A Systematic Literature Review of Behavioral Biases and Irrationality in Global Real Estate Markets

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Abstract

The traditional paradigm of real estate finance is currently undergoing a fundamental transition from neoclassical "Rationality" to a more nuanced "Behavioral Reality." This study provides a systematic literature review (SLR) of the behavioral biases influencing global property markets, synthesizing evidence from 97 peer-reviewed documents indexed in Scopus over 26 years (1999–2025). Following the PRISMA 2020 protocol, the review addresses four critical research questions regarding the evolution, taxonomy, geographical distribution, and market impact of behavioral heuristics. The findings reveal a significant surge in publication density between 2020 and 2025, though the specific drivers of this increase should be interpreted cautiously and may be linked to heightened global economic uncertainty and the digitalization of property markets. A comprehensive taxonomy identifies herding behavior as the most dominant bias, functioning as a psychological bridge between individual cognitive errors (e.g., anchoring) and collective social sentiment. Methodologically, the landscape is shifting from macro-econometric modeling toward experimental designs, particularly in measuring "investor mood." Geographically, the reviewed evidence suggests that emerging markets (e.g., China, Turkey, and Poland) tend to exhibit higher levels of behavioral bias and intentional herding than many developed markets, potentially reflecting differences in institutional transparency and market maturity. Ultimately, the persistent decoupling of house prices from fundamental values during bubble formations highlights important limitations of the Efficient Market Hypothesis (EMH) in explaining observed market behavior. The reviewed evidence appears more consistent with the assumptions of the Adaptive Market Hypothesis (AMH), which recognizes the adaptive and behaviorally influenced nature of market participants, than with strictly rational market perspectives. These insights offer practical implications for investors, practitioners, and policymakers in developing behaviorally informed early warning systems to mitigate systemic volatility in the global real estate ecosystem.

Keywords: Behavioral Real Estate; Systematic Literature Review; Herding Behavior; Market Efficiency; Adaptive Market Hypothesis; Housing Bubbles; Emerging Markets.

A. INTRODUCTION

The conceptualization of real estate markets has long been anchored in the Efficient Market Hypothesis (EMH) and Rational Choice Theory, which posit that property prices reflect fundamental economic indicators and that market participants act as rational utility maximizers. However, the inherent complexity of real estate—characterized by high capital intensity, illiquidity, and significant information asymmetry—often leads to market anomalies that traditional theories fail to reconcile. Recent empirical investigations from 2020 to 2025 demonstrate that market movements often defy logical economic foundations, suggesting that reality in property markets is shaped more by psychological heuristics than by mathematical equilibrium (Coskun & Pitros, 2022). Scholars have increasingly recognized that investor mood and

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sentiment play a pivotal role in housing returns, with asymmetric effects: negative sentiment shifts often yield more significant market impacts than positive ones. This realization has shifted scholarly discourse toward behavioral finance, exploring how cognitive limitations and emotional responses shape global consumer behavior in property markets.

In the contemporary landscape, particularly during the volatile period of 2020–2025, behavioral biases have been identified as systemic drivers of market instability and price bubbles. Recent studies emphasize that investor overconfidence remains a primary catalyst for excessive trading and mispricing, particularly in Asia-Pacific REIT markets (X. H. Bao & Li, 2020). The global uncertainty induced by the COVID-19 pandemic further intensified these irrational tendencies; research shows consistent evidence of herding behavior across both developed and emerging international REIT markets during this crisis (Lesame et al., 2024). Furthermore, sentiment measurement has become a nascent field of study, linking digital footprints, such as Google Trends and social media activity, to fluctuations in house prices (Kwakye & Haw, 2021). Even in specialized sectors like housing reverse mortgages, cognitive biases stemming from limited financial literacy have been found to significantly hinder effective demand, illustrating that irrationality permeates various levels of the property market (Han & Zhang, 2024).

The intellectual foundation of behavioral finance can be traced to the pioneering work of (D. Kahneman & Tversky, 1979), whose Prospect Theory challenged the assumption that individuals consistently make rational decisions under uncertainty. Their research demonstrated that decision-makers systematically rely on cognitive shortcuts and are disproportionately influenced by potential losses relative to equivalent gains. Building on this foundation, (D. H. Kahneman et al., 1986) introduced behavioral anomalies such as mental accounting and the endowment effect, while (Shiller, 2015) highlighted the role of investor psychology and irrational exuberance in driving asset price bubbles. Collectively, these seminal contributions shifted the focus of financial research from perfectly rational agents toward boundedly rational individuals whose decisions are shaped by cognitive, emotional, and social influences.

In real estate markets, these behavioral mechanisms may be particularly salient due to the high financial commitment, emotional attachment, limited liquidity, and information asymmetry associated with property transactions. Unlike highly liquid financial markets, real estate decisions are often infrequent, irreversible, and socially embedded, making them especially vulnerable to heuristics such as anchoring, loss aversion, overconfidence, and herding behavior. Consequently, behavioral finance provides an important theoretical lens through which persistent market anomalies and housing bubbles can be more effectively understood.

Despite the prevalence of these biases, the transition from rationality to reality is often obstructed by institutional factors. For instance, the endowment effect—a cognitive bias where owners overvalue their property—is often intensified rather than mitigated by the involvement of real estate agents, further contributing to market inefficiency (Tomal, 2024). While some markets show signs of improving efficiency, the persistent presence of herding behaviour continues to necessitate careful monitoring by policymakers to avoid endogenous bubbles (K. Ahn et al., 2024). In emerging economies, the pressure to follow collective market trends often forces consumers to make short-term, irrational decisions, even when long-term ownership remains theoretically profitable (Olszewski, 2025). This multifaceted landscape of biases, ranging from individual heuristics to global herding (Huang et al., 2020), necessitates a rigorous re-evaluation of how decision-making occurs in diverse geographical contexts.

There is a discernible need for a systematic synthesis that integrates foundational behavioral finance theories with the rapidly expanding body of recent empirical evidence. Although previous studies have examined specific behavioral phenomena in property markets, the existing literature remains fragmented across different bias categories, methodological approaches, and geographical contexts. To date, efforts to

systematically integrate these dimensions into a single analytical framework have been limited, particularly given the substantial growth in post-pandemic research.

By conducting a Systematic Literature Review (SLR) of 97 peer-reviewed documents indexed in the Scopus database between 1999 and 2025, this study seeks to address this gap through four specific contributions. First, it develops a comprehensive taxonomy of behavioral biases affecting real estate decision-making. Second, it maps the methodological evolution of behavioral property research over the past two decades. Third, it compares the manifestation of behavioral biases across developed and emerging markets. Fourth, it synthesizes recent evidence regarding the implications of these biases for market efficiency, housing bubbles, and the broader transition from rationality to behavioral reality. Through these contributions, the review provides a comprehensive mapping of the intellectual structure of behavioral property research while establishing a future research agenda at the intersection of psychology, technology, and real estate.

B. METHODS

This study employs a Systematic Literature Review (SLR) to synthesize and critically evaluate the existing body of knowledge on behavioral biases in global real estate markets. To ensure rigor, transparency, and reproducibility, the review process strictly adheres to the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The methodology is structured into three primary phases: (1) search strategy and identification, (2) multi-stage eligibility screening using qualitative and quantitative criteria, and (3) data extraction and quality assessment.

The Scopus database was selected as the primary source for literature retrieval due to its comprehensive coverage of high-impact, peer-reviewed journals in finance, economics, and real estate management. The initial search was conducted in March 2026, encompassing a 26-year publication window from 1999 to 2025 to capture a longitudinal view of the field. A comprehensive Boolean search strategy was developed and applied to titles, abstracts, and keywords (TITLE-ABS-KEY). The search string was designed to capture the broad spectrum of behavioral finance concepts in real estate research, including cognitive biases, investor sentiment, overconfidence, loss aversion, herding, market psychology, and irrational decision-making. The final search syntax was formulated as follows: ((cognitive bias OR behavioral finance OR investor sentiment OR overconfidence OR loss aversion OR prospect theory OR market psycholog OR herding behavior OR irrational*) AND (real estate investment OR property investment OR housing market OR housing finance OR real estate market)).** The keyword selection was informed by both seminal behavioral finance theories and terminology frequently employed in contemporary real estate literature.

To ensure the robustness and topical focus of the corpus, the 124 identified records underwent a multi-stage screening process based on strict inclusion and exclusion criteria (Table 1). This went beyond mechanical filtering to incorporate qualitative analysis of relevance.

Table 1. Inclusion and Exclusion Criteria

Criterion	Inclusion	Exclusion
Document Type	Peer-reviewed journal articles	Books, conference proceedings, editorials, and notes
Language	English	Non-English publications
Publication Stage	Final (published)	Articles in press or early access
Topical Focus (Initial)	Explicit focus on irrationality, sentiment, or biases in real estate or housing markets	Studies solely on macroeconomic trends (e.g., supply/demand), technical/engineering aspects of buildings, or financial markets not directly related to real estate assets
Focus on Real Estate Consumer	Analysis of cognitive or emotional heuristics in decision-	Discussion of market dynamics without clear reference to specific behavioral or psychological constructs (e.g., herding, anchoring, or overconfidence)

Criterion	Inclusion	Exclusion
Behavior (Qualitative)	making by individual buyers, investors, or groups	
Quality Assessment	Articles presenting explicit methodology, transparent data sources, and direct relevance to behavioral real estate research	Articles with insufficient methodological information or weak relevance to behavioral constructs

Source: Research Data, 2025

Of the initial 124 records, 15 documents were excluded during mechanical screening based on document type (n=10), language (n=4), and publication stage (n=1). The remaining 109 full-text articles were then assessed qualitatively against the topical focus and behavioral relevance criteria. During this phase, 12 articles were excluded for focusing solely on macro-volatility without analyzing individual heuristics or for being irrelevant in the context. This rigorous screening ensured a high-quality final corpus of 97 articles for systematic synthesis.

To enhance consistency during screening and extraction, a structured coding protocol was developed prior to article assessment. Each study was evaluated against the predefined inclusion and exclusion criteria and subsequently coded according to behavioral bias category, methodological approach, geographical context, and principal findings. To minimize selection bias, the screening process was conducted iteratively, with articles deemed ambiguous in relevance re-examined against the review objectives and eligibility criteria before final inclusion decisions were made.

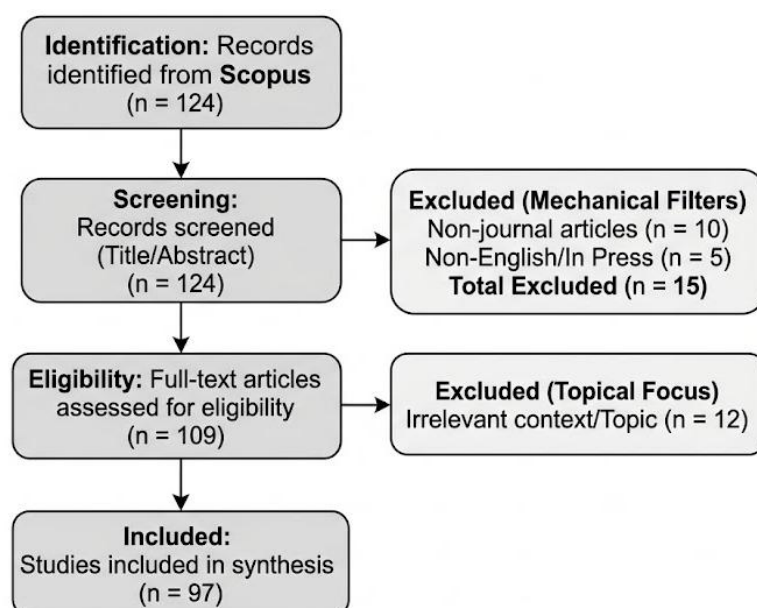


Figure 1. PRISMA 2020 Flow Diagram

Source: Research Data, 2025

In addition to relevance screening, a quality assessment procedure was undertaken to ensure the robustness of the final corpus. Studies were evaluated based on publication quality, methodological clarity, transparency of data sources, analytical rigor, and relevance to behavioral decision-making in real estate contexts. Only peer-reviewed journal articles that demonstrated sufficient methodological transparency and direct relevance to the review objectives were retained for synthesis. This quality-oriented filtering process strengthened the reliability of the evidence base and reduced the likelihood of including studies that made only a limited analytical contribution.

The 97 included articles were subjected to a two-fold analysis: 1) Bibliometric Analysis: Metadata such as publication years, leading journals, and keyword co-occurrence were analyzed to address RQ1; and 2) Qualitative Synthesis (Narrative Approach): Data were extracted using a systematic matrix, categorizing specific types of behavioral bias, methodological approach, and geographical context. This analytical framework enabled the systematic examination of the evolution, taxonomy, geographical distribution, and market implications of behavioral biases in real estate markets, thereby addressing the study's research questions.

C. RESULTS AND ANALYSIS

Bibliometric Trajectory

This section presents a quantitative overview of the 97 included documents to delineate the intellectual trajectory of behavioral property research. By mapping the bibliometric trends, the study reveals the shifting landscape from traditional rational-agent paradigms toward the recognition of behavioral realities.

Publication Trends (1999–2025)

The longitudinal distribution of scholarly output over the 26-year study period indicates significant, albeit nonlinear, growth in research interest in behavioral biases in real estate markets. As illustrated in Figure 2, the publication trajectory can be categorized into three distinct phases:

1. Inception Phase (1999–2010): During the first decade, research remained sporadic, with the dataset containing only a few pioneering works, e.g., (Green & LaCour-Little, 1999; Xie & Liu, 2004). This phase is characterized by an average of fewer than two publications per year, reflecting the nascent stage of behavioral finance integration within the real estate discipline.
2. Growth Phase (2011–2019): Following the 2008 global financial crisis, productivity increased. The volume of research began to stabilize and grow, reaching a peak of nine publications in 2017. This period highlights the scholarly effort to reconcile the devastating market collapses with psychological drivers such as irrational exuberance and herding behavior.
3. Acceleration Phase (2020–2025): The most recent period exhibits a surge in academic attention, with approximately 45% of the total dataset published within these six years. The year 2024 recorded the highest output ($n=12$), as shown in the data trends. This acceleration coincides with a period characterized by heightened market uncertainty during and after the COVID-19 pandemic, as well as the increasing digitalization of property transactions. While the reviewed literature suggests that these developments may have stimulated scholarly interest in behavioral phenomena, the present review does not directly test the causal drivers of publication growth.

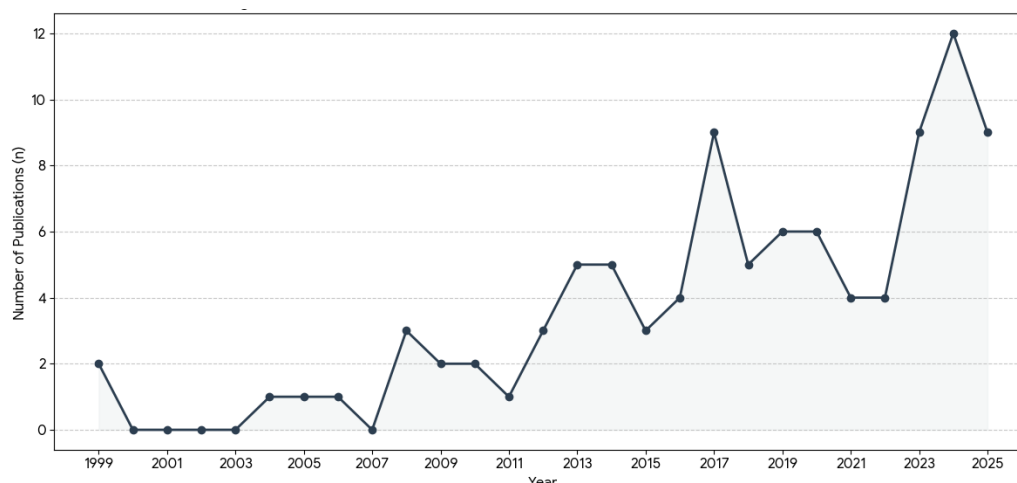


Figure 2. Annual Publication Trends

Source: Research Data, 2025

The overall trend confirms a persistent and intensifying commitment to understanding the behavioral reality of property markets, moving beyond the idealized assumptions of market efficiency. The overall trend indicates a sustained increase in scholarly attention toward behavioral dimensions of property markets, reflecting a growing recognition of the role of psychological and social factors alongside traditional market-efficiency perspectives.

Leading Journals & Sources

The 97 articles in the final corpus were published across a diverse array of peer-reviewed journals, predominantly within the fields of real estate economics, housing studies, and urban finance. As summarized in Table 2, the publication landscape is led by specialized journals that bridge the gap between financial theory and property market practice.

Table 2. Synthesis Matrix of Selected Key Studies on Behavioral Biases in Real Estate (2020–2025)

Author (Year)	Core Behavioral Bias	Research Methodology	Geographical Context	Key Findings & Contribution to Reality
(Olszewski, 2025)	Herding Behavior	Qualitative & Comparative	Poland	Argues that while herding appears irrational in the short term, homeownership remains a rational long-term hedge in emerging markets.
(Tomal, 2024)	Endowment Effect	Lab-in-the-field Experiment	Poland	Reveals that real estate agents often exacerbate the endowment effect, leading to persistent price misalignments between buyers and sellers.
(Lesame et al., 2024)	Herding Behavior	Static & Time-varying Estimation	Global (27 Countries)	Provides evidence that global economic uncertainty during the COVID-19 pandemic was a primary driver of herding in REIT markets.
(Han & Zhang, 2024)	Cognitive Bias & Financial Literacy	Scenario-simulation Experiment	China	Demonstrates that low financial literacy creates significant cognitive biases, resulting in insufficient demand in the reverse mortgage housing market.
(Y.-J. Ahn & Kim, 2024)	Herding & Market Efficiency	Log-periodic Power Law (LPPL)	South Korea	Suggests that market efficiency improved post-pandemic, though herding remains a latent risk during early-stage bubble formations.

Author (Year)	Core Behavioral Bias	Research Methodology	Geographical Context	Key Findings & Contribution to Reality
(Coskun & Pitros, 2022)	Irrational Bubble Theory	Algorithmic Bubble Model	Turkey	Successfully identified a historical irrational bubble period (2013-2017) using behavioral parameters rather than purely macro data.
(Kwakye & Haw, 2021)	Sentiment Measurement	Systematic Review	Global	Identifies Google Trends and social media sentiment as nascent but powerful indicators of future house price movements.
(X. H. Bao & Li, 2020)	Overconfidence Effect	Quantitative Analysis	Asia Pacific	Confirms that investor overconfidence leads to excessive trading and inferior performance in various REIT markets.
(Huang et al., 2020)	Spurious Herding	Quantile Regression	USA	Distinguishes between intentional and spurious herding, suggesting that professional reports can mitigate irrational collective behavior.

Source: Research Data, 2025

The most prominent journals in the dataset include the International Journal of Housing Market Analysis (n=4), the Journal of Property Investment & Finance (n=3), and Habitat International (n=3). These journals consistently publish empirical evidence on market anomalies, sentiment-driven price fluctuations, and behavioral heuristics. Furthermore, broader interdisciplinary sources such as the Journal of Housing and the Built Environment (n=4) and Taylor & Francis-affiliated journals (n=15) have emerged as significant contributors, particularly in exploring the intersection of social psychology and residential mobility.

The concentration of studies in Q1 and Q2 journals across real estate, housing studies, and urban economics suggests that behavioral property research has become increasingly established as a scholarly inquiry. The presence of these studies in reputable peer-reviewed journals provides a strong evidentiary foundation for examining the growing role of behavioral explanations in real estate markets. The dominance of these publishers further underscores the global interest in identifying irrational bubbles and cognitive biases across varying market contexts.

Keyword Co-occurrence and Research Clusters

To further understand the conceptual evolution from rationality to reality, a keyword co-occurrence analysis was conducted on the 97-document corpus. This analysis identifies the intellectual connections between specific behavioral constructs and market phenomena. As visualized in Figure 3, the literature is organized into three primary thematic clusters that have dominated the scholarly discourse between 1999 and 2025.

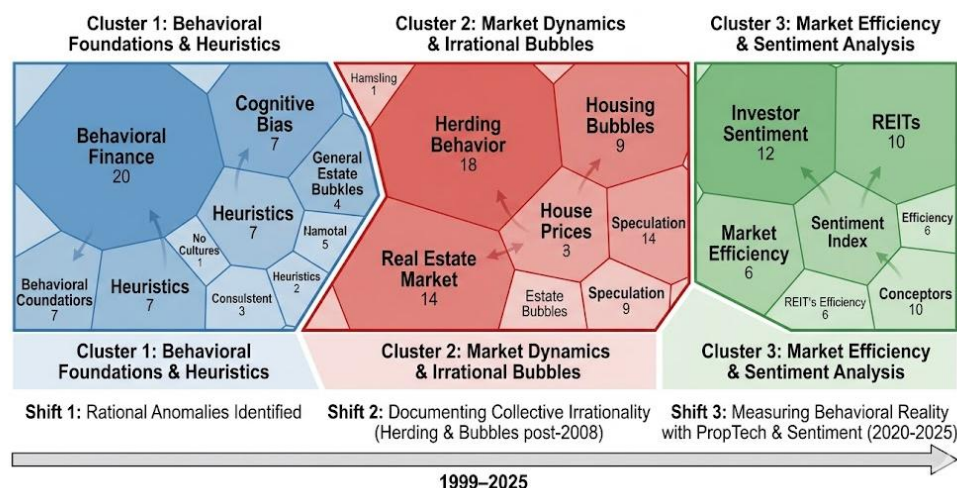


Figure 3. Keyword Co-occurrence and Research Clusters in Behavioral Property Research

Source: Research Data, 2025

Cluster 1: Behavioral Foundations and Heuristics (Blue Cluster): This cluster is anchored by high-frequency terms such as behavioral finance, cognitive biases, and heuristics. Recent studies within this cluster, e.g., (Han & Zhang, 2024; Tomal, 2024), emphasize the role of individual decision-making limitations, such as the endowment effect and limited financial literacy, in distorting property market outcomes. Cluster 2: Market Dynamics and Irrational Bubbles (Red Cluster): Dominated by keywords such as housing bubbles, herding behavior, and speculation, this cluster reflects the reality of collective market failure. Studies in this category, e.g., (K. Ahn et al., 2024; Coskun & Pitros, 2022), analyze how the synchronization of irrational individual actions leads to systemic instability and the decoupling of house prices from economic fundamentals. Cluster 3: Market Efficiency and Sentiment Analysis (Green Cluster): This cluster bridges the gap between traditional theory and modern behavioral tools, featuring keywords such as market efficiency, investor sentiment, and REITs. A notable trend in recent years (2020–2025) is the integration of digital sentiment indexes and Google Trends to quantify market irrationality (Kwakye & Haw, 2021). The density of connections between herding behavior and housing bubbles suggests that social influence represents one of the most prominent behavioral themes identified within the reviewed literature.

Beyond illustrating thematic relationships, the keyword co-occurrence analysis also reveals the relative prominence of several behavioral constructs within the corpus under review. Herding behavior, investor sentiment, overconfidence, anchoring, and loss aversion consistently appeared among the most recurrent themes across different geographical and methodological contexts. This pattern provides preliminary support for the development of the behavioral taxonomy presented in the following section, in which individual biases are examined in greater detail across their cognitive, emotional, and social dimensions.

Taxonomy of Behavioral Biases

The transition from rationality to reality is most visible in the classification of biases that govern property transactions. Based on the systematic analysis of the 97-document corpus, behavioral biases are categorized into cognitive, emotional, and social dimensions. This section delineates the cognitive heuristics that lead to systematic departures from market efficiency.

Cognitive Biases

Cognitive biases are systematic errors in thinking that occur when people process and interpret information. In the context of real estate, these biases often stem from investors' bounded rationality, which

leads them to use shortcuts (heuristics) to navigate the complex, information-heavy property market (Figure 4).

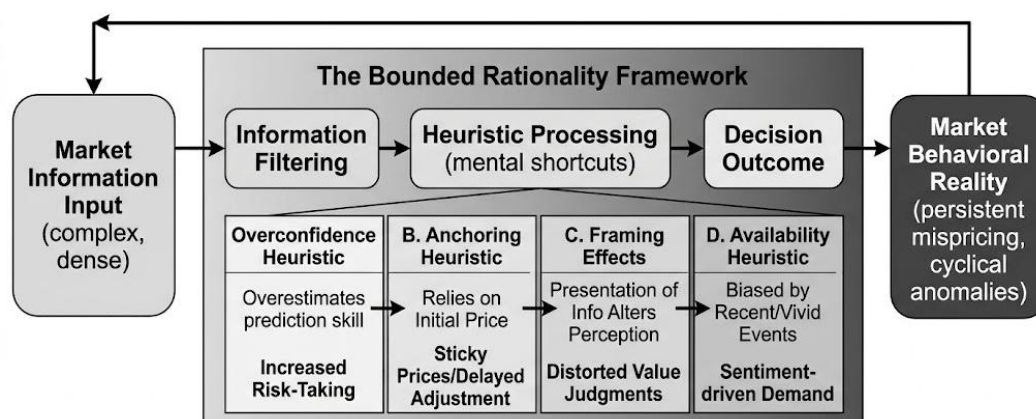


Figure 4. Author-developed conceptual synthesis of bounded rationality and cognitive biases in property investment based on the reviewed literature (1999–2025)

Source: Research Data, 2025

First, Overconfidence: This remains one of the most robust cognitive anomalies identified in the dataset. Investors often overestimate their ability to predict market cycles or accurately value assets. Recent evidence from Asia-Pacific REIT markets suggests that overconfidence is associated with excessive trading and suboptimal investment performance (X. H. Bao & Li, 2020). This bias is particularly prevalent during market booms, where past successes are attributed to personal skill rather than market momentum, reinforcing a false sense of security that leads to increased risk-taking.

Second, Anchoring: This heuristic occurs when individuals rely too heavily on the first piece of information encountered (the anchor) when making decisions. In property markets, anchors typically take the form of historical purchase prices or initial asking prices. Even when market fundamentals shift, consumers often anchor their valuation to these figures, leading to sticky prices and delayed market corrections (Olszewski, 2025). This bias may contribute to slower price adjustments than would be expected under fully rational market assumptions.

Third, Framing Effects: Property transactions may be substantially influenced by how information is framed and communicated to market participants. Research suggests that the way real estate agents frame costs—such as commissions or mortgage terms—can alter a consumer's perception of value. For instance, framing commissions as a potential loss rather than a service cost has been shown to intensify the endowment effect and distort the final transaction price (Tomal, 2024). This highlights that the presentation of information is as critical as the information itself. Fourth, Availability Heuristics: Decisions are frequently biased toward information that is most available or recent in the consumer's memory. In the post-pandemic era, the recent price surges have led many investors to overestimate the likelihood of continued double-digit returns, while ignoring long-term historical averages. This bias appears closely related to sentiment-driven demand, in which recent news cycles and media coverage of property winners drive irrational search behavior (Kwakye & Haw, 2021). Collectively, these cognitive biases demonstrate that property market participants frequently rely on simplified decision-making processes when confronted with uncertainty, complexity, and information constraints. Such heuristics may contribute to systematic deviations from the fully rational decision-making assumptions commonly embedded in traditional market theories.

Emotional & Social Biases

While cognitive biases reflect errors in logical processing, emotional and social biases stem from subjective feelings and the influence of the collective environment. In the global real estate market, these biases often override fundamental valuations, particularly during periods of high economic uncertainty. The distribution and impact of these biases are summarized in Table 3.

Table 3. Emotional and Social Biases: Prevalence and Market Impact (2020–2025)

Bias Category	Specific Bias	Impact on Market Reality	Key Supporting Literature
Emotional	Loss Aversion & Endowment Effect	Drives market illiquidity and sticky prices; sellers overvalue assets based on ownership, creating a persistent price gap with buyers.	Tomal (2024); Olszewski (2025)
Emotional	Regret Aversion & Disposition Effect	Leads to suboptimal exit strategies; investors hold losing assets too long to avoid the emotional sting of realizing a loss.	Alawajee et al. (2025); Bao & Li (2020)
Social	Collective Sentiment	Triggers sentiment-driven price volatility; market movements become decoupled from fundamentals due to social media and digital search trends.	(Kwakye & Haw, 2021; Tan & Huang, 2020) Huang et al. (2020)
Social	Social Influence / Information Cascades	Individual decision-making is suppressed by the wisdom of the crowd, leading to irrational exuberance in emerging markets.	Lesame et al. (2024); Ahn et al. (2024)

Source: Research Data, 2025

Real estate is inherently emotional because it serves both as an investment and as a shelter. The reviewed literature indicates a substantial presence of loss-aversion-related behaviors, where the psychological pain of a financial loss is significantly more intense than the joy of an equivalent gain. This often manifests as the Endowment Effect, in which owners value their property above the market rate simply because they own it. Recent experimental evidence suggests that real estate agents, rather than acting as rational moderators, often intensify this bias by framing transaction costs as potential losses for the seller (Tomal, 2024). This emotional friction leads to market illiquidity and persistent price-gap anomalies between buyers and sellers.

Investors frequently avoid making decisions that might lead to future regret, such as selling a property too early before a peak or buying into a potential bubble. This bias often leads to disposition effects in REIT markets, where investors hold on to losing assets for too long in hopes of a recovery, thereby avoiding the emotional sting of realizing a loss. In emerging markets like Saudi Arabia, this emotional state is closely linked to investor mood, where negative shifts in the collective psyche lead to disproportionately large drops in housing returns.

The reality of property markets is a social construct heavily influenced by others' behavior. Social biases emerge when individuals look to the actions of the majority as a sentiment index for their own decisions. The use of digital footprints and Google Trends has recently been synthesized as a method to quantify this collective emotional state, indicating a meaningful association between social media sentiment and house price fluctuations (Kwakye & Haw, 2021). As illustrated in the conceptual framework in Figure 5, social influence serves as a bridge between individual emotional states and the macro-level phenomenon of herding, which will be discussed in the next section.

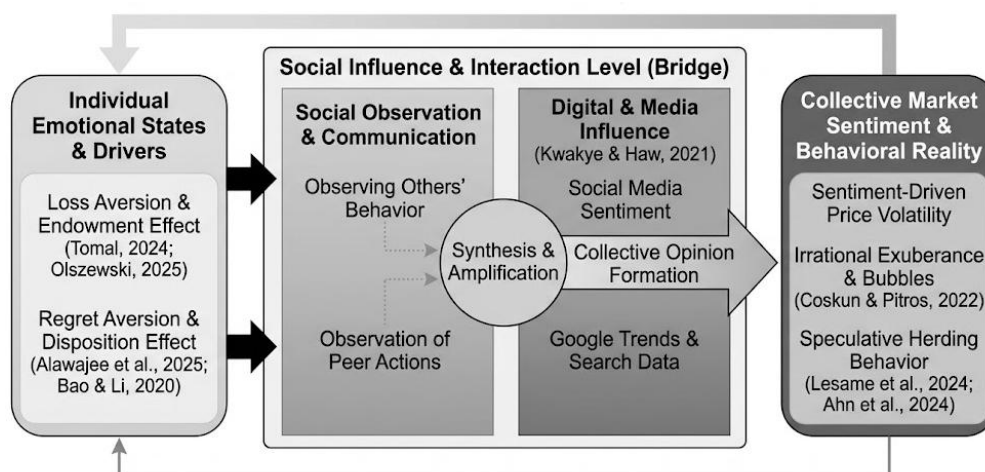


Figure 5. The Interaction Between Emotional Drivers and Social Influence
 Source: Research Data, 2025

Among the various cognitive, emotional, and social biases identified in the reviewed literature, herding behavior stands out for its ability to connect individual-level decision biases with collective market outcomes. As reflected in the frequency analysis and keyword co-occurrence patterns, herding consistently appears across different market contexts, methodological traditions, and geographical regions. Consequently, it warrants separate discussion as a distinct behavioral phenomenon with broad implications for market efficiency and the formation of housing bubbles.

The Dominance of Herding Behavior

A defining characteristic of the transition from rationality to reality in property markets is the systemic dominance of herding behavior. Unlike isolated cognitive errors, herding represents a collective synchronization of irrationality that bridges individual psychology and macro-level market failures. As shown in the mechanics of bubble formation in Figure 6, herding appears to be a major mechanism underlying episodes of irrational exuberance, in which market participants abandon private information in favor of following the perceived wisdom of the crowd.

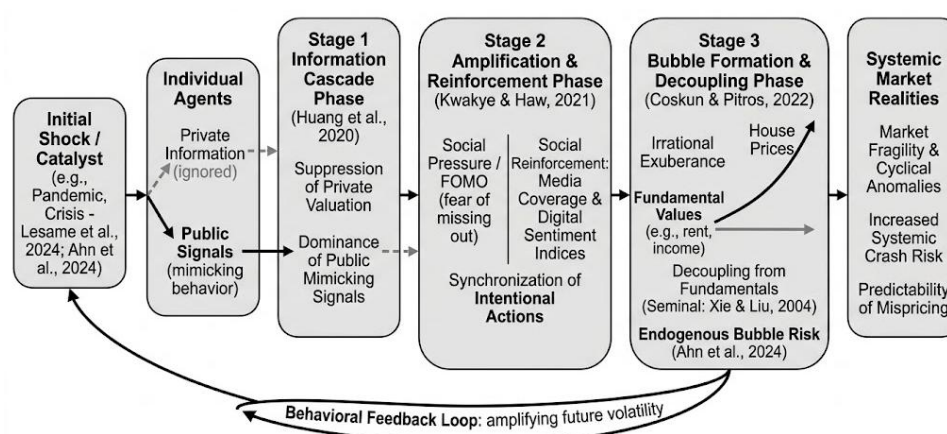


Figure 6. The Mechanics of Herding Behavior and Market Bubble Formation
 Source: Research Data, 2025

The literature increasingly distinguishes between different forms of collective movement. Recent empirical evidence suggests that while some herding is spurious—driven by rational reactions to shared macroeconomic shocks—a significant portion is intentional, where investors mimic others due to social pressure or fear of missing out (FOMO) (Huang et al., 2020). This intentional mimicking has frequently been identified as an important contributor to the decoupling of house prices from fundamental values, as first formalized by (Xie & Liu, 2004).

The literature published between 2020 and 2025 reports increasing evidence of herding behavior across a wide range of real estate contexts. Research across 27 countries indicates that the extreme economic uncertainty of the COVID-19 era intensified herding formations in international REIT markets (Lesame et al., 2024). This suggests that in times of crisis, the market's behavioral reality shifts toward collective safety-seeking, paradoxically increasing systemic volatility and the risk of endogenous bubbles (K. Ahn et al., 2024). The manifestation of herding varies by market maturity. In emerging economies like Poland, herding is often driven by a lack of alternative investment hedges, making property acquisition a socially reinforced rational choice despite short-term price irrationality (Olszewski, 2025). Conversely, in developed markets, herding is frequently mediated by digital sentiment and professional reports, which can either amplify or mitigate the cascade of irrationality. The persistence of herding across different geographical and institutional settings suggests that collective behavioral influences constitute an important and recurring feature of global real estate dynamics rather than an isolated market anomaly.

Methodological & Geographical Landscapes

The transition from rationality to reality is not only reflected in thematic shifts but also in the evolution of research methodologies. By analyzing how behavioral biases are measured, this study identifies a methodological diversification that enhances the robustness of property research.

Methodological Approaches

The systematic analysis of the 97-document corpus indicates a diverse and evolving methodological landscape characterized by the coexistence of quantitative, experimental, and review-based approaches. Historically, the field has been anchored in quantitative econometrics, but the period of 2020–2025 has seen a significant rise in experimental and simulation-based approaches, as summarized in Table 4.

Table 4. Summary of Methodological Trends in Behavioral Property Research

Method Category	Primary Analytical Goal	Key Supporting Literature (2020-2025)
Quantitative	Detecting herding and asymmetric sentiment effects in REITs/Housing.	Alawajee et al. (2025); Lesame et al. (2024)
Experimental	Observing individual cognitive biases (e.g., Endowment Effect) in real-time.	(Han & Zhang, 2024; Tomal, 2024)
Systematic Review	Synthesizing measurement approaches for house price sentiment.	(Kwakye & Haw, 2021)

Source: Research Data, 2025

The methodological distribution of the reviewed studies shows a strong predominance of quantitative approaches (approximately 70%), followed by experimental and simulation-based studies (approximately 20%), with systematic reviews, bibliometric analyses, and other synthesis-oriented approaches accounting for the remaining proportion. This distribution reflects the continued reliance on market data while also highlighting the growing interest in directly observing behavioral decision-making processes. Approximately 70% of the dataset employs advanced econometric modeling to detect market anomalies and herding behavior from secondary market data. Time-series models, such as the Nonlinear Autoregressive Distributed Lag (NARDL) and Vector Error Correction Models (VECM), are frequently

utilized to capture the asymmetric effects of investor sentiment on property returns. Furthermore, the Log-periodic Power Law (LPPL) model has emerged as a robust tool for identifying the early stages of bubble formation driven by collective irrationality (K. Ahn et al., 2024). These methods provide a macro-behavioral perspective on market dynamics and suggest that behavioral influences may operate at both individual and systemic levels.

A crucial shift in the 2020s is the increasing use of lab-in-the-field experiments and scenario simulations to capture micro-behavioral data. Unlike econometric models that infer bias from price movements, these methods observe decision-making in real-time. For instance, (Tomal, 2024) utilized experimental designs to confirm the persistence of the endowment effect among property buyers and sellers. Similarly, (Han & Zhang, 2024) employed scenario simulations to test how information disclosure affects demand willingness, providing additional insights into cognitive biases that may not be fully observable through market-level quantitative data alone. A smaller subset of the literature (approx. 10%) focuses on synthesizing the field's intellectual structure through bibliometric analysis and systematic reviews. These studies, including (Kwakye & Haw, 2021), provide the necessary longitudinal perspective to map the evolution of sentiment measurement. The methodological variety identified suggests that while econometrics remains the bedrock for identifying what happens in the market, experimental methods are becoming essential for explaining why it happens at the individual level. The methodological variety identified suggests that while econometrics remains the bedrock for identifying what happens in the market, experimental methods are becoming essential for explaining why it happens at the individual level.

Geographical Contexts

The transition from rationality to reality is deeply influenced by the market's institutional and economic maturity. The reviewed literature suggests notable differences in the manifestation of behavioral biases across developed and emerging property markets, as summarized in Table 5.

Table 5. Comparison of Behavioral Manifestations: Developed vs. Emerging Markets		
Feature	Developed Markets (e.g., US, UK)	Emerging Markets (e.g., China, Turkey, Poland)
Primary Driver	Information cascades and professional overconfidence.	Sentiment-driven demand and lack of alternative hedges.
Herding Type	Often, spurious or institutionally mediated.	Primarily intentional and socially reinforced.
Market Impact	Short-term mispricing; relatively fast correction.	Long-term price decoupling; persistent bubble risk.
Supporting Lit.	Huang et al. (2020); Lesame et al. (2024)	Alawajee et al. (2025); Han & Zhang (2024); Tomal (2024)

Source: Research Data, 2025

Of the 97 studies included in the review, a substantial proportion focused on emerging-market contexts, particularly China, Turkey, Poland, and several Middle Eastern economies. A smaller but still significant body of research examined developed markets such as the United States, the United Kingdom, and Australia. This geographical distribution provides an opportunity to compare how institutional environments, market transparency, and investor characteristics may influence the expression of behavioral biases. In Developed Markets (US, UK, and Australia) contexts, research often focuses on the interaction between market efficiency and professional investor behavior. Although these markets are generally characterized by greater transparency and institutional maturity, the reviewed evidence suggests they remain susceptible to various forms of behavioral influence. Studies in the USA, for instance, highlight the presence of spurious herding where professional reports and information dissemination mechanisms may help moderate certain forms of collective behavioral distortions (Huang et al., 2020). However, the recent

volatility in international REITs shows that even developed markets are susceptible to systemic herding during global crises (Lesame et al., 2024).

Behavioral influences appear particularly salient in many emerging-market contexts, where high volatility and a lack of stable investment alternatives often amplify irrational exuberance. In China, cognitive biases stemming from limited financial literacy may substantially influence demand for specialized property products (Han & Zhang, 2024). In Turkey, behavioral parameters have contributed to the identification of historical housing bubble episodes that macro-economic data alone could not explain (Coskun & Pitros, 2022). Recent literature from Saudi Arabia provides evidence of a mood-driven market in which housing returns are highly sensitive to investors' collective psychological state. Similarly, in Poland, the role of real estate agents in intensifying the endowment effect illustrates how local brokerage practices can cement market inefficiencies (Tomal, 2024). Collectively, these findings indicate that property ownership in many emerging markets may be influenced not only by economic considerations but also by social reinforcement mechanisms and collective sentiment, making herding a persistent structural feature rather than a temporary anomaly (Olszewski, 2025).

As illustrated in Figure 7, the reviewed evidence suggests a potential association between lower levels of market transparency and stronger manifestations of behavioral biases. However, the strength and nature of this relationship may vary across institutional and economic contexts, indicating the need for further comparative investigation.

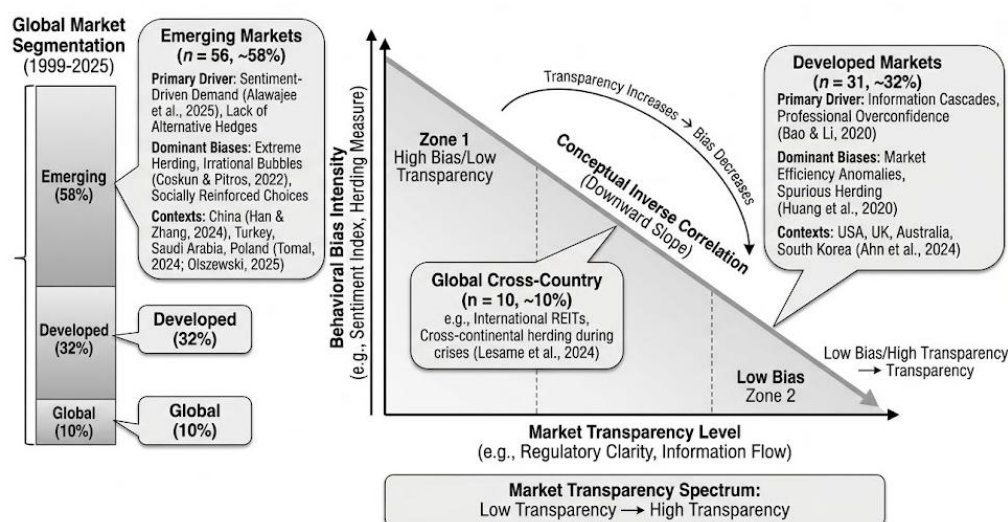


Figure 7. Author-developed conceptual synthesis illustrating the relationship between market transparency and behavioral bias intensity based on evidence identified in the reviewed literature (1999–2025)

Source: Research Data, 2025

Impact on Market Efficiency & Volatility

This section synthesizes the findings to illustrate how individual and collective behavioral biases aggregate into macro-level market phenomena. The evidence synthesized from the 97-document corpus suggests that behavioral factors constitute an important influence on cyclical instability in global property markets, alongside broader economic, institutional, and regulatory determinants.

Biases and Housing Bubbles

The systematic analysis of the 97-document corpus suggests that the interaction between individual and collective behavioral biases may contribute substantially to the formation and amplification of housing bubbles. Such episodes are frequently characterized by periods in which property prices appear increasingly disconnected from underlying economic fundamentals, including rental yields and household income.

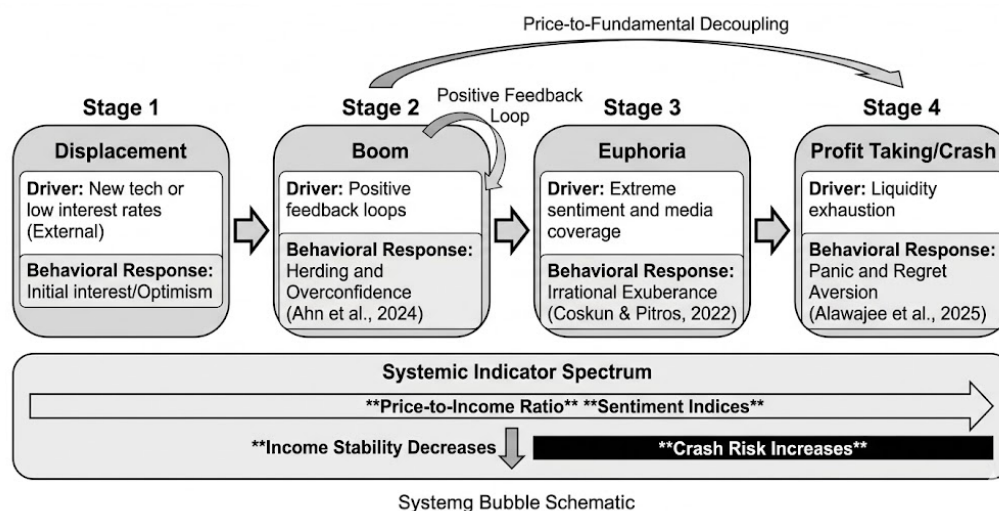


Figure 8. Author-developed conceptual synthesis of housing bubble formation dynamics based on evidence identified in the reviewed literature (1999–2025)

Source: Research Data, 2025

As conceptualized in Figure 8, the reviewed literature suggests that housing bubble episodes often exhibit recurring patterns that can be interpreted through a four-stage conceptual trajectory driven by shifting psychological states. The visualization illustrates how external catalysts (e.g., pandemic uncertainty or policy shifts) trigger initial optimism during the Displacement stage. This quickly transitions into a rapid Boom stage, characterized by positive feedback mechanisms in which herding behavior and investor overconfidence may reinforce rising price expectations, accelerating price increases (K. Ahn et al., 2024). The market subsequently reaches its peak during the Euphoria stage, a period defined by collective irrational exuberance. Traditional rational economic models may struggle to explain this state fully; however, integrating behavioral parameters has provided useful insights for identifying historical bubbles, such as the 2013-2017 Turkish housing bubble (Coskun & Pitros, 2022), and is referenced in Figure 8. The subsequent Profit Taking/Correction phase is triggered when liquidity is exhausted, giving way to widespread panic and regret aversion as the bubble bursts.

Digital sentiment catalysts further complicate the modern real estate landscape. The dissemination of irrational optimism via social media and digital search trends acts as a powerful amplifier, accelerating self-reinforcing cycles that may drive price movements difficult to explain solely by conventional economic fundamentals (Kwakye & Haw, 2021). The synthesis of these dynamic stages (Figure 8) demonstrates that behavioral reality leads to systemic market fragility, transforming predictable irrationality into systemic risk.

Market Efficiency Re-evaluation

The synthesis of the 97-document corpus necessitates a fundamental re-evaluation of the Efficient Market Hypothesis (EMH) within the global property sector. The collective evidence from the last two decades, and particularly the surge of research between 2020 and 2025, suggests that the traditional view of property markets as weak-form efficient is increasingly incompatible with the observed behavioral reality. Instead of prices reflecting all available information instantaneously, the market is characterized by

persistent inefficiencies driven by the psychological anchors and social cascades discussed in previous sections. These inefficiencies are not merely temporary deviations corrected by rational arbitrageurs; rather, they are structural features of a market in which high transaction costs and information asymmetry prevent rapid mispricing elimination.

Table 6. Synthesis of Market Efficiency: Traditional vs. Behavioral Paradigms

Dimension	Traditional Rational Paradigm (EMH)	Behavioral Reality Paradigm
Price Formation	Instantaneous reflection of all available data.	Delayed adjustment due to anchoring and sentiment.
Market Anomalies	Rare, temporary, and quickly corrected.	Persistent, structural, and socially reinforced.
Investor Role	Homogeneous, utility-maximizing agents.	Heterogeneous agents with bounded rationality.
Efficiency Status	Absolute (Weak, Semi-strong, or Strong).	Relative and adaptive across different contexts.
Supporting Lit.	Fama (1970) [Theoretical Basis]	Alawajee (2025); Ahn (2024); Tomal (2024)

Source: Research Data, 2025

As summarized in Table 6, the transition toward a Behavioral Reality paradigm acknowledges that market efficiency lies on a spectrum rather than in a binary state. In developed markets, efficiency is often compromised by institutional overconfidence and complex herding, whereas in emerging markets, the lack of transparency leads to more extreme forms of sentiment-driven price decoupling. Recent studies indicate that digital sentiment measures provide additional explanatory power, complementing traditional economic indicators when examining housing market dynamics, showing that house prices are often more responsive to collective moods and digital search trends than to fundamental economic shifts. Collectively, the reviewed evidence appears broadly consistent with several assumptions of the Adaptive Market Hypothesis (AMH), particularly the notion that market participants continuously adapt to changing environments while remaining subject to cognitive and emotional constraints, where agents learn and adapt but remain bound by the cognitive and emotional constraints that prioritize survival and social mimicry over pure utility maximization. At the same time, evidence from several developed-market studies suggests that elements of market efficiency remain observable under certain institutional conditions, indicating that EMH and AMH may be viewed as complementary rather than mutually exclusive perspectives.

The reviewed evidence indicates that behavioral influences represent an important and recurring component of global property market dynamics. However, the extent to which these influences translate into persistent inefficiency appears to vary across institutional, economic, and geographical contexts. By recognizing that behavioral biases are a permanent component of the market structure, stakeholders can better anticipate the systemic risks and volatility that traditional rational models fail to address. This re-evaluation serves as the final evidence in the trajectory from rationality to reality, confirming that the future of property market analysis must be grounded in the psychological complexities of its human participants.

Although the reviewed literature provides substantial evidence of behavioral distortions in property markets, several studies also report periods of relatively efficient price adjustment, particularly in markets characterized by high transparency, strong institutional oversight, and extensive information availability. These findings suggest that market efficiency and behavioral influences should not necessarily be viewed as competing explanations but rather as complementary perspectives that may dominate under different market conditions.

Discussion

The transition from rationality to reality suggests that behavioral biases are not merely anomalies that disrupt an otherwise efficient market; they are structural components of the property market itself. The

dominance of herding behavior, as identified in nearly half of the analyzed corpus, indicates that social mimicry is a fundamental mechanism of price discovery in real estate. When private information is suppressed in favor of collective signals—as seen during the COVID-19 pandemic (Lesame et al., 2024)—the market enters a state of behavioral reality where prices are driven by sentiment rather than utility.

Furthermore, the reality identified in this study highlights the asymmetry in the impact of bias. Evidence from emerging markets (Tomal, 2024) shows that irrationality intensity is inversely proportional to market transparency. In these contexts, the Rationality of the Efficient Market Hypothesis (EMH) serves more as a theoretical benchmark than a practical description of market conditions. The persistent nature of the endowment effect and anchoring ensures that property remains an illiquid and sticky-priced asset class, inherently resistant to the rapid corrections predicted by traditional rational-agent models.

Ultimately, this synthesis suggests that the Behavioral Reality of property markets is one of predictable irrationality. Investors do not become irrational by accident; they follow systematic psychological patterns—heuristics—that are now quantifiable through digital sentiment and advanced econometric modeling. This recognition necessitates a shift in property valuation and policy-making, moving away from models that assume perfect information toward those that account for the human element of market volatility.

Theoretical Implications

The empirical density of behavioral biases identified in this review poses a robust challenge to the long-standing hegemony of the Efficient Market Hypothesis (EMH) in real estate finance. While the EMH assumes that price movements are stochastic and reflect all available information through the actions of rational agents, the "Reality" synthesized from the 97 included documents reveals a market governed by systemic feedback loops and cognitive inertia. The persistence of herding behavior and anchoring heuristics suggests that property prices are not merely reflections of fundamental value but are social constructs influenced by the collective psyche. This theoretical friction indicates that the traditional "Rationality" paradigm often overlooks the institutional and psychological friction—such as the endowment effect or information cascades—that prevents markets from clearing efficiently.

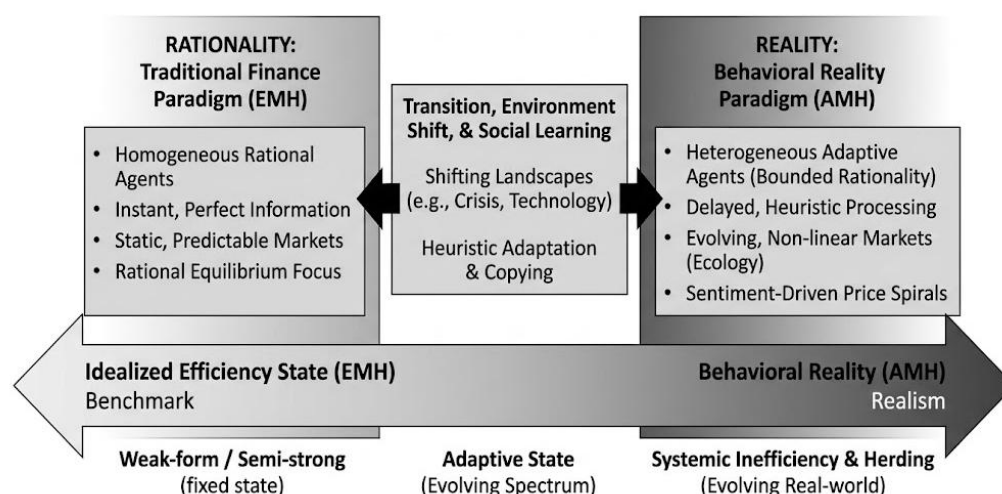


Figure 9. The Spectrum of Market Efficiency – From EMH to AMH

Source: Research Data, 2025

Instead of a binary view of market efficiency, the findings strongly support a transition toward the Adaptive Market Hypothesis (AMH) as a more representative theoretical framework for global real estate.

The AMH posits that market efficiency is not a fixed state but an evolving process in which agents adapt their heuristics to environmental shifts and past experiences. This is particularly evident in the way global property markets responded to the COVID-19 pandemic; as illustrated in Figure 9, the shift in the "environmental landscape" triggered a resurgence of collective herding and sentiment-driven demand, temporarily overriding rational fundamentals. By adopting the AMH, theorists can account for periods of extreme irrationality—such as housing bubbles—without discarding the possibility of rational behavior under stable conditions. This synthesis reconciles the "Rationality" of traditional finance with the "Reality" of behavioral economics, suggesting that market participants are not consistently irrational, but rather "predictably irrational" within their bounded environments.

Furthermore, the theoretical shift proposed here demands a fundamental re-evaluation of how risk is conceptualized in property investment models. Traditional risk assessments often treat volatility as a symmetric deviation from a rational mean; however, the presence of asymmetric emotional biases, such as regret aversion and loss aversion, suggests that market risk is deeply rooted in human sentiment rather than just economic indicators. The integration of behavioral realities into theoretical models allows for a more nuanced understanding of "tail risks" and market fragility. By moving away from the assumption of the "representative rational agent," future real estate theories can better capture the heterogeneous nature of property consumers, acknowledging that market maturity and transparency are the primary determinants of where a specific market resides on the spectrum between efficiency and behavioral chaos.

Practical Implications

The recognition of a "Behavioral Reality" in property markets offers profound implications for investors, practitioners, and policymakers. For investors, the findings suggest that traditional financial literacy must be augmented with "behavioral literacy." Since the dataset confirms that price movements are frequently decoupled from fundamentals due to collective sentiment, investors should incorporate sentiment indices and digital search trends into their risk assessment frameworks. Rather than relying solely on rental yields or income-to-price ratios, a behaviorally informed strategy involves identifying periods of "irrational exuberance" or "information cascades" to avoid buying at the peak of a sentiment-driven bubble. Diversification strategies must also evolve; investors should not only diversify across geographical locations but also across markets with varying levels of transparency to hedge against the extreme herding behavior prevalent in emerging economies.

For real estate practitioners, particularly agents and brokers, the evidence regarding the endowment effect and anchoring heuristics provides a roadmap for more effective market moderation. Practitioners should view themselves as "choice architects" who can mitigate the emotional friction that leads to market illiquidity. By utilizing objective valuation benchmarks and framing transaction costs through the lens of long-term utility rather than immediate loss, agents can help sellers overcome the psychological pain of "losing" an asset they have overvalued. Furthermore, the rise of digital sentiment as a market catalyst suggests that marketing strategies should be balanced with ethical disclosure to prevent the unintentional amplification of herding, which can lead to rapid price corrections and long-term damage to professional reputation.

From a regulatory perspective, the findings necessitate a shift in how "cooling measures" and housing policies are designed. Traditional interventions, such as adjusting interest rates or loan-to-value ratios, may be insufficient if the underlying driver of market volatility is psychological FOMO (fear of missing out) or social mimicry. Regulators should consider "behavioral interventions" that increase market transparency and provide real-time public data on sentiment-driven price decoupling. In emerging markets, where herding is most intense, policy frameworks should focus on stabilizing investor "mood" and providing alternative investment hedges to prevent property from being used as a speculative vehicle for socially

reinforced irrationality. Ultimately, managing the property market's "Reality" requires a holistic approach that treats psychological volatility with the same level of institutional rigor as economic stability.

Future Research Agenda

The systematic mapping of behavioral property research from 1999 to 2025 reveals significant progress in identifying biases, yet several critical gaps remain that define the future research agenda. First, there is an urgent need to explore the intersection of PropTech (Property Technology) and behavioral heuristics. As the real estate industry undergoes rapid digitalization, the role of Artificial Intelligence (AI) and Machine Learning (ML) in either mitigating or amplifying investor biases remains under-researched. Future studies should investigate whether AI-driven valuation tools provide a "rational anchor" that reduces the endowment effect or if algorithmic biases inadvertently trigger new forms of digital herding. Understanding how digital platforms restructure "Behavioral Reality" will be essential as more transactions shift to virtual environments.

Second, while this review identified a growing trend in experimental methods, there is a persistent lack of longitudinal behavioral studies. Most existing research provides a cross-sectional snapshot of bias during specific crises, such as the COVID-19 pandemic or the 2008 financial crash. Future research should prioritize longitudinal designs that track the "learning curve" of investors across multiple market cycles to validate the Adaptive Market Hypothesis (AMH) empirically. Such studies would clarify whether market participants genuinely adapt their heuristics over time or whether certain emotional biases, such as loss aversion, are biologically "hard-wired" and resistant to social learning.

Third, the literature's geographical distribution suggests a need for more cross-cultural behavioral-comparative studies. While this review highlighted differences between developed and emerging markets, the underlying cultural determinants of biases such as "social proof" or "status-seeking" in property acquisition warrant deeper qualitative exploration. Integrating ethnographic approaches with quantitative econometrics—a mixed-methods transition—could provide a more holistic understanding of why certain biases dominate in specific institutional settings. Finally, the development of real-time "Behavioral Early Warning Systems" (BEWS) that utilize Big Data and social media sentiment represents a promising frontier for market stability. By refining the predictive power of sentiment indices, future researchers can help bridge the gap between psychological theory and macro-prudential regulation, ensuring that the property market's reality is managed with foresight rather than hindsight.

D. CONCLUSION

This systematic literature review has mapped the intellectual trajectory of behavioral real estate research over 26 years, focusing on the 97 documents that define the field's modern landscape. The evidence synthesized throughout this study confirms a fundamental paradigm shift from the idealized "Rationality" of neoclassical finance to a nuanced "Behavioral Reality." By addressing the four primary research questions, this study provides a comprehensive baseline for understanding the psychological underpinnings of global property market volatility.

The evolution of the field (RQ1) reveals that behavioral research is no longer a peripheral niche but a central pillar of real estate analysis, with a dramatic surge in publication volume and citation density observed between 2020 and 2025. The taxonomy of biases (RQ2) identifies herding behavior as the dominant driver of market dynamics, acting as a bridge between individual cognitive heuristics and collective social sentiment. While cognitive errors like anchoring and overconfidence provide the initial spark for mispricing, it is the social reinforcement of herding that escalates these errors into systemic market failures.

Methodologically and geographically (RQ3), the research landscape is diversifying, shifting from purely macro-econometric models to micro-level experimental designs. A critical finding is the inverse correlation between market transparency and bias intensity, with emerging markets exhibiting more extreme manifestations of irrationality than their developed counterparts. This geographical divergence demonstrates that "Behavioral Reality" is highly context-sensitive, shaped by institutional maturity and information availability. Consequently, the impact on market efficiency (RQ4) suggests that the Efficient Market Hypothesis (EMH) is insufficient to explain the persistent "price-to-fundamental decoupling" observed in global housing bubbles. The findings strongly advocate for the Adaptive Market Hypothesis (AMH) as a superior framework that accounts for the human propensity for social mimicry and emotional adaptation.

In conclusion, the "Reality" of property markets is one of predictable irrationality. This study contributes to the literature by providing a structured framework that reconciles psychological complexity with market mechanics. For investors, practitioners, and policymakers, the message is clear: managing the property market requires more than just economic data; it requires a deep understanding of the human heuristics that drive every transaction. As the market enters a new era of digitalization and AI integration, the behavioral insights provided in this review will serve as an essential guide for navigating the inherent volatility of the global real estate landscape.

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