

## **Behavioral biases influencing investment decision making in emergent markets: A systematic literature review**

## **Les biais comportementaux influençant la prise de décision d'investissement dans les marchés émergents : Une revue de littérature systématique**

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### Résumé :

La revue de la littérature et des travaux de recherche se propose de combler les insuffisances du corpus actuel de connaissances de façon à donner une vision plus claire sur les principales orientations futures de la recherche dans un domaine donnée. Au cours des dernières années, des avancées théoriques considérables ont eu lieu dans le champ de la prise de décision en matière d'investissement financier, et de plus en plus de nouveaux concepts, théories et modèles apparentés sont désormais appliqués dans le cadre de la prise de décision d'investissement. Toutefois, une attention moindre a été accordée à l'élaboration de revues de littératures systématiques dans le domaine de la finance comportementale et en particulier dans le contexte des marchés émergents. Pour pallier cette lacune, la présente étude se propose de faire le point sur les travaux de recherche publiés dans des bases de données de renommée telles que Web of Science, Scopus et JSTOR, et ce, en respectant les lignes directrices PRISMA. Les critères d'inclusion couvrent le type de publication, le champ de l'étude et la langue. La présente étude est réalisée à la lumière de 20 articles sélectionnés à partir de revues publiées en anglais dans les champs de « *l'économie, de l'économétrie et de la finance* », et celui « *des affaires, du management et de la comptabilité* », entre l'année 2013 et l'année 2023. Notre analyse de la littérature a donné les résultats suivants : La vaste majorité de la bibliographie actuelle sur les biais comportementaux se concentre sur des biais courants tels que le biais d'excès de confiance, le comportement grégaire et l'effet de disposition au détriment d'autres biais pouvant influencer à leur tour la prise de décision d'investissement. En outre, la plupart des études recensées révèlent l'existence d'un biais d'échantillonnage, se manifestant par le recours à l'échantillonnage de convenance plutôt qu'à l'échantillonnage probabiliste. Nous estimons que les conclusions de la présente recherche seront d'une grande utilité aussi bien pour les universitaires, que pour les professionnels de façon à leurs permettre de mieux appréhender les divers biais comportementaux, et d'identifier les stratégies potentielles leurs permettant de contrer les effets indésirables desdits biais. Toutefois, il est possible que certaines études importantes n'aient pas été prises en compte par notre étude en raison des critères d'inclusion arrêtés. En revanche, l'originalité de notre article relève du fait qu'il couvre une période relativement récente : de l'année 2013 à l'année 2023. En plus, ce document offre de nouvelles perspectives dans un domaine de recherche potentiel, et ce, en choisissant comme contexte celui des marchés émergents qui demeure moins étudié par rapports à celui des marchés développés.

**Mots clés :** Biais comportementaux, décision d'investissement, investisseurs individuels, marchés émergents, revue systématique de littérature.

**Classification JEL :** D91 ; G11 ; G4 ; G41.

**Type de l'article :** Recherche théorique

### Abstract:

The literature and research document review aims to highlight gaps in the current body of knowledge, thereby predicting the future direction of research. Over the past years, major theoretical developments have taken place in financial investment decision-making. Today, many new concepts, theories, and related models are used extensively in financial investment decision-making. However, less attention has been paid to building systematic literature reviews in the field of behavioral finance, especially in the context of emergent markets. To fill this gap, the present study reviewed research articles published in renowned databases such as (Web of Science, Scopus, and JSTOR) using the PRISMA guidelines. Inclusion criteria comprised the type of the document, the field of the study, and the language. The present study is based on 20 selected articles from journals published in English in the field of “*economics, econometrics and finance; business, management and accounting*” between 2013 and 2023. Our analysis of the literature produced the following results: Most of the current literature on behavioral biases focuses on common behavioral biases such as overconfidence bias, herding bias, and disposition affect to the detriment of others that also influence investment decision-making. In addition, the vast majority of the studies analyzed show a sampling bias, manifested by the use of convenience sampling instead of probabilistic sampling. The outcomes of this research will help both academics and practitioners to understand the existence of various behavioral biases, and to identify potential strategies to overcome the adverse effects of these biases. Still, some significant studies may be missed due to the inclusion criteria settled. The originality of this paper is that it covers a recent period: from 2013 to 2023. Besides, this paper offers new insights into potential research areas by pinpointing studies in emergent countries that are still less frequently undertaken compared to developed countries.

**Keywords:** Behavioral biases, investment decision, individual investors, emergent markets, systematic literature review.

**JEL Classification:** D91; G11; G4; G41.

**Paper type:** Theoretical Research

## 1. Introduction:

The conventional financial model, also called the standard financial model, has ruled the finance domain since the mid-1950s. The traditional financial theory also states that stock prices adjust quickly to new information in a competent stock market and that recent stock prices reflect all information about the stock. The groundbreaking work of Friedman and Savage (1948) assumes that an investor can buy lottery tickets and insurance all at once. Thus presents two types of behavior, one of which he is perceived as a risk-taker and the other as a risk-averse. Simon (1972b) supports bounded rationality that refutes the concept of total rationality. According to him, investors in this case merely rationalize their decisions rather than optimizing them when simpler alternatives are available. This explanation is at odds with the conventional financial theory of maximization. Therefore, this leads us to conclude that the concept of traditional finance has its limitations, not least the failure to consider investors' emotions and state of mind at the time of investment, which would eventually influence their decision-making. These investors may turn out to be irrational and end up taking losses. It is therefore essential to fully comprehend and analyze investor's emotions and behavior to better appreciate their investment strategy. This has spawned a new concept in finance, known as behavioral finance. Behavioral theorists stipulate that markets were inefficient and investors were normal (Statman, 2008).

Behavioral finance is an extended phase of the traditional finance assumption, which encompasses and predicts the actual outcomes of rational decision-making in the financial markets (Olsen, 1998). By acknowledging the cerebral model of human behavior committed to fundamental money-related decisions, traditional financial models could be refined to capture and provide clarity on the realities of the current fast-changing markets. Behavioral finance can be described as the branch of finance that employs scientific models to account for the way people make financial decisions in reality. (Huckle; 2007). In addition, behavioral finance can be employed to give sense to the incalculable investment decisions of investors; (Ritter, 2003). In other words, behavioral finance is the discipline that studies the effect of psychology on the behavior of financial agents and the after-effects that lead to a better understanding of market inefficiencies. (Sewell, 2007). The pioneers of behavioral finance - Daniel Kahneman and Amos Tversky - have contributed to a revolutionary body of research in the realm of behavioral economics. Their work, expressed in the guise of prospect theory, confirms once again the crucial role of psychology in decision-making. They have highlighted the importance of heuristics in the decision-making process. By using heuristics, we adopt a problem-solving strategy that may be neither optimal nor perfect. Certain financial cases can be best explored by employing models in which certain agents are not completely rational. New and ongoing research in the field of behavioral finance shows that in an economy where both rational and irrational operators interplay, the consequences of irrationality on prices can be substantial and long-lasting. This irrationality can be accentuated in many emergent countries. Who have already suffered from several market breakdowns because of the errors caused by behavioral biases (Khan et al., 2015). Which may influence the general performance and may lead to unanticipated returns and unusual volatility.

Consequently, a thorough and systematic survey of investors' behavior would provide significant insights into market trends, which in turn might be useful in boosting financial market regulations. The findings generated by this research will enable us to better comprehend investors' biases and raise awareness about their behavior. Understanding these biases will help companies to capture trading patterns and investor finances, potentially affecting share values as well as the financial market.

To sum up, the purpose of our systematic literature review is to identify specific behavioral biases and their impact on the investment decisions of individual investors in the context of emergent markets.

The present article is organized as explained below:

- we begin with a brief theoretical background;
- we explain the search strategy adopted to find the most pertinent literature;
- we present our selection criteria following the PRISMA statement;
- we report our findings and emphasize the research gaps.

## 2. Theoretical genesis:

Before addressing the method we have adopted to answer our research question, we will present the theoretical genesis of behavioral finance. In this part of the paper, we will briefly review the major theories of behavioral finance.

Although standard financial theories are widespread and well-documented, they have come under considerable criticism and their relevance to the modern era has been questioned. The reason for this is their failure and incapacity to explain the abrupt events and oddities in stock markets worldwide. Moreover, with the arrival of the global financial crisis, the foundations of standard finance, namely EMH and CAPM, have been the subject of extensive debate. DeBondt and Thaler (1995) point out that over the last twenty years, psychologists' findings have shown that utility theory, Bayesian models and rational expectations theory are all descriptively defective. Hence the emergence of behavioral finance. The roots of behavioral finance can be traced back to the lack of well-founded theories of financial decision-making. In rational, modern finance, all constructs, theories, and models assume that the investor and agent are rational and that the stock market is efficient (Nigam et al., 2018). The origins of this new field go back over 150 years. One of the most iconic works marking the inauguration of this school of thoughts returns to Selden with his book "*Psychology of The Stock Market*", which was published in 1912, that was one of the most influential works, and quite possibly the first to apply psychological principles directly onto the stock market. This iconic work highlights the importance of emotions and psychological aspects for investors in the financial markets.

Psychologists Daniel Kahneman and Amos Tversky are renowned for their pioneering research in behavioral finance. They propounded a well-known approach to behavioral finance, "*prospect theory*", for evaluating decision-making under conditions of risk and uncertainty. They presented "*prospect theory*" as a substitute for "*expected utility theory*". Rational rules were thus superseded by psychological principles. It makes it easier for individuals to weigh up gains and losses. The three key aspects of this theory are mentioned below. The first main point of prospect theory is that individuals evaluate the options offered in terms of a reference point. The second point implies that individuals are inclined to be more risk-averse when they are in a profit situation, but when it comes to losses, they are more likely to seek out risk, as they are then much more prone to take risks to recover from a loss to be able to return to a previous position. The third point is that individuals are disposed to loss aversion, i.e. it hurts more to lose an asset than to win the same asset.

De Bondt and Thaler (1985) sought to provide an elucidation of "*market overreaction*" using monthly market return data. In addition, they have applied the overreaction assumption to test the relevance of the representativeness heuristic to both investors' asset choices and the stock market. The conclusions of these same authors revealed that investors are prone to overreact to disparate news and happenings in the stock market, which is not in line with "*Bayes' rule*". Moreover, stock market operators are exhibiting irrationality in their decision-making.

The notion of mental accounting was pioneered by Thaler (1999) and Tversky and Kahneman (1981). Thaler's definition of mental accounting refers to the mental processes that an investor uses to estimate and monitor financial activity like an organization's normal accounting process.

Mental accounting is a behavioral response by investors to keep records of their investment activities, and it motivates investors to invest in various stocks. Investors choose to invest based on their current position or the side they are on. Shefrin & Statman (1994) argue that if an investor is holding a “*risk-free*” part of his investment, he is thinking rationally, whereas he is thinking irrationally when he is taking risks to enrich himself.

An alternative model similar to CAPM has been proposed by Shefrin and Statman (1994) under the name of the “*Behavioral Asset Pricing Model*” (BAPM). The BAPM model is characterized by being much more close to the reality. According to this model, market interaction is the outcome of two sets of traders: “*informational traders*” and “*noisy traders*”. Informational traders are considered “*rational traders*” who are committed to CAPM. Noise traders, on the contrary, are those who do not adhere to CAPM, and whose decisions are driven by cognitive errors and deceitful emotions. Besides the BAPM model, Shefrin and Statman (2000) are also behind the emergence of the “*Behavioral Portfolio Theory*” (BPT), which supersedes MPT. As explained by Prosad et al. (2015) BPT takes into account the behavior of investors who construct their portfolios as a pyramid of assets, level by level, where each level is associated with its specific goal and risk attitude.

Consequently, we can infer from the above-mentioned body of literature that traditional financial theories are not sufficient to depict the anomalies of financial markets. In increasingly globalized economies, scholars have illustrated the importance of behavioral factors in traditional financial theories to fully elucidate how financial markets operate.

### **3. Prerequisite definitions:**

Before exploring our research question, we thought it would be judicious to define what we mean by behavioral biases.

Behavioral biases are a departure from the logical thought process. They can be divided into two groups: cognitive biases and emotional biases. Investors' behavior frequently diverges from the realm of logic and reasoning, and they show many behavioral biases in the process of selecting investments. Cognitive biases are defined as errors that occur when treating or interpreting information when investing. A cognitive bias is a heuristic that causes a person to depart from a rational course of action. Emotions are connected with feelings, beliefs, and perceptions. Emotional bias occurs intrinsically. Human decisions are affected by biases, especially those involving financial matters. Behavioral biases lead to erroneous investment decisions. Among the various existing behavioral biases, our research addresses 21.

### **4. Materials and methods:**

For our systematic review, we have adopted a strategy to select the most relevant literature. This search strategy had been adapted to many databases: Web of Science, Scopus, JSTOR, Springer, Science Direct, and the following keywords were utilized: “*behavioral factors*” OR “*behavioral biases*” AND “*investment decisions*” OR “*investment decision making*”. All searches we conducted from the creation of the database to 2023 and encompassed articles, review papers, and reports, issued in many languages.

PRISMA Statement served as the foundation for the selection criteria. (Moher et al., 2009) (*Figure 1*). The research focused principally on mapping the body of literature on behavioral biases in the area of social sciences. The search then narrowed to the subject areas of “*Economics, econometrics and finance; business, management and accounting*” fields. The search covered the period from the year 2013 to 2023. All articles above 2013 were rejected. Also, duplicate records were removed.



**Table 1: The keywords and the different combinations used in our research**

<b>Keywords</b>	<b>synonym</b>	<b>Combinations</b>
<i>Behavioral factors (A1)</i>	<i>Behavioral biases (A2)</i>	<b>C1=A1+B1</b>
<i>Investment decisions (B1)</i>	<i>Investment decision making (B2)</i>	<b>C2=A1+B2</b>
		<b>C3=A2+B1</b>
		<b>C4=A2+B2</b>

*Source: Authors*

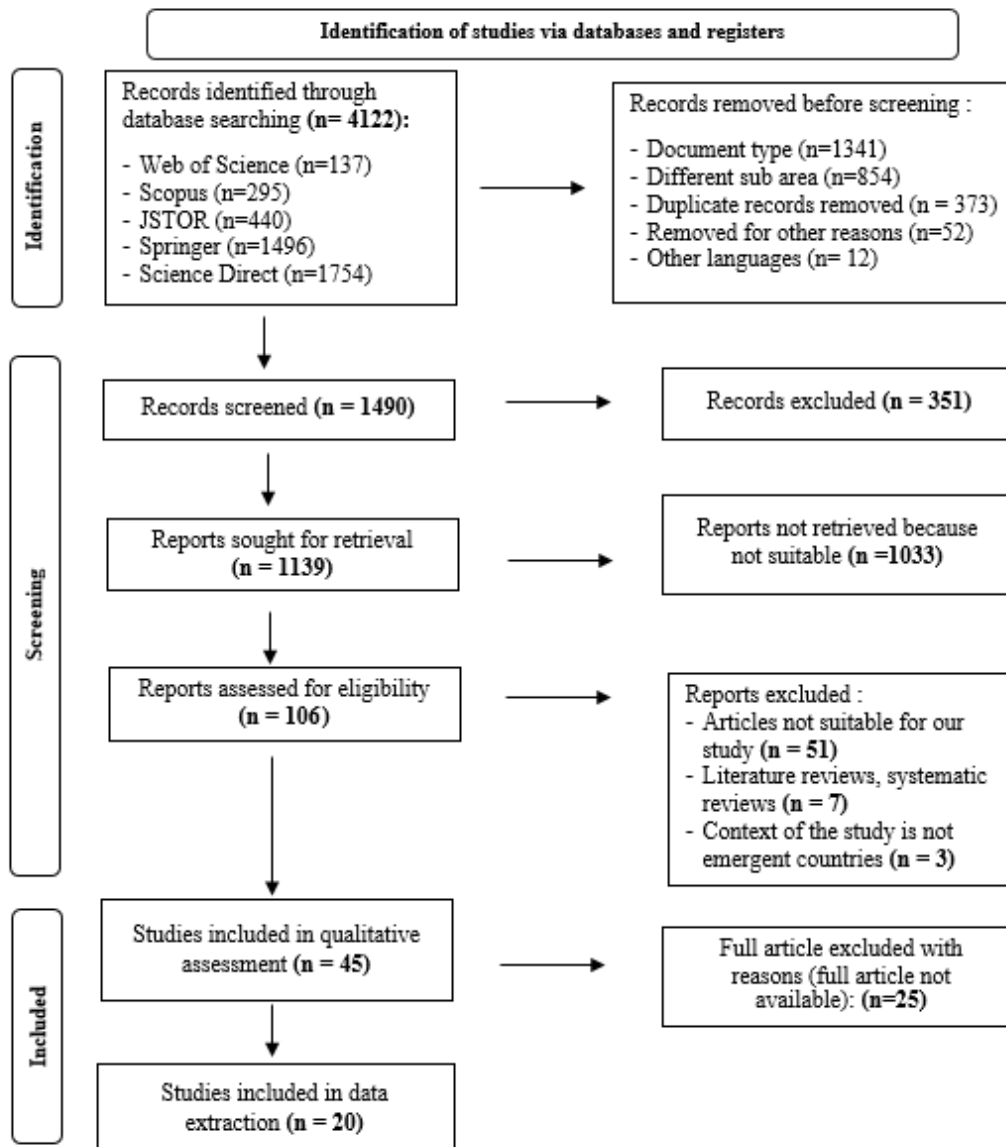
The search was mainly focused on the emergent countries, thus, articles from any other country were excluded. A total of 61 research articles were eliminated at this phase. Review articles, book chapters, books, and conference papers were excluded from the search. All duplications were checked thoroughly. Article abstracts were thoroughly analyzed to ascertain the suitability and pertinence of the papers included in our systematic review. A thorough evaluation of each research paper was subsequently conducted. The next criterion was to include only articles published in English.

**Table 2: Inclusion and Exclusion criteria**

	<b>Inclusion criteria</b>	<b>Exclusion criteria</b>
<b>Database</b>	Web of Science, Scopus, JSTOR, Springer, Science Direct	Databases not mentioned in the inclusion criteria
<b>Research frame</b>	From 2013 to 2023	Published before
<b>Document type</b>	Research articles	Review articles, book chapters, books, and conference papers.
<b>Subject area</b>	Economics, econometrics, and finance; business, management, and accounting	Other subjects area
<b>Language</b>	English	Other languages

*Source: Authors*

Figure 1: PRISMA flow diagram<sup>1</sup>



Source: Authors adapted from PRISMA statement

## 5. Findings:

As shown in **Figure 1**, a total number of 4122 studies were retrieved during the initial search (Web of Science (n=137); Scopus (n=295); JSTOR (n=440); Springer (n=1496); Science Direct (n=1754)). After examining the title, abstract and keywords of all studies queried in various databases, 1033 studies were eliminated from the systematic review because unsuitable for this study. Consequently, (n=106) studies were selected for the full-text study eligibility stage. Of the studies selected for full-text eligibility (n=61), studies were rejected for a number of reasons (not suitable for our study, or not addressing our question in the context of emerging countries). Finally, 20 studies were considered for our systematic review.

<sup>1</sup> From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021; 372:n71. doi: 10.1136/bmj.n71

### **Country in which the Data was compiled:**

Concerning the geographic features of the papers covered in our systematic review, there are seven studies from India (*Adil M.; Singh Y.; Ansari M.S., 2022*); (*Das A.R.; Panja S. 2022*); (*Jain J.; Walia N.; Gupta S., 2020*); (*Khilar R.P.; Singh S., 2019*); (*Kumar S.; Goyal N., 2016*); (*Madaan G.; Singh S., 2019*) and (*Raheja S.; Dhiman B., 2019*). Five from Pakistan (*Abideen, Z. U., Ahmed, Z., Qiu, H., & Zhao, Y. 2023*); (*Ahmad M., 2020*); (*Asad, Humaira; Khan, Aatiqa; Faiz, Rafia, 2018*); (*Khan, I; Afeef, M; Jan, S; Ihsan, A, 2021*); and (*Parveen, S; Satti, ZW; Subhan, QA; Jamil, S., 2020*). Two from Bangladesh (*Hossain T.; Siddiqua P., 2022*) and (*Yasmin F.; Ferdaous J., 2023*). The rest of the studies were carried out in Amman, Egypt, Indonesia, Malaysia, Nigeria, Tunisia, and Vietnam.

### **Context:**

The studies included in our systematic literature review address the issue of the influence of behavioral biases on investment decisions in the context of stock markets: (*Abideen, Z. U., Ahmed, Z., Qiu, H., & Zhao, Y. 2023*); (*Ahmad M., 2020*); (*Areiqat A.Y.; Abu-Rumman A.; Al-Alani Y.S.; Alhorani A., 2019*); (*Asad, Humaira; Khan, Aatiqa; Faiz, Rafia, 2018*); (*Bakar, Suzaida; Yi, Amelia Ng Chui, 2016*); (*Bouteska, Ahmed; Regaieg, Boutheina, 2018*); (*Cao, MM; Nguyen, NT; Tran, TT, 2021*); (*Das A.R.; Panja S. 2022*); (*Hossain T.; Siddiqua P., 2022*); (*Jain J.; Walia N.; Gupta S., 2020*); (*Kartini K.; Nahda K., 2021*); (*Khan, I; Afeef, M; Jan, S; Ihsan, A, 2021*); (*Khilar R.P.; Singh S., 2019*); (*Madaan G.; Singh S., 2019*); (*Metawa, N; Hassan, MK; Metawa, S; Safa, MF, 2019*). (*Parveen, S; Satti, ZW; Subhan, QA; Jamil, S., 2020*); (*Raheja S.; Dhiman B., 2019*); and (*Yasmin F.; Ferdaous J., 2023*). Except for two studies that address the same issue in a different context: One of them was in the context of different financial products (*Adil M.; Singh Y.; Ansari M.S., 2022*). The other one was in the context of investment banks (*Ogunlusi O.E.; Obademi O., 2021*).

### **Participants:**

The total number of participants included in our systematic literature review is 5988. With a higher number of male individuals. The subject population of a large proportion of the studies is individual investors. (*Abideen, Z. U., Ahmed, Z., Qiu, H., & Zhao, Y. 2023*); (*Adil M.; Singh Y.; Ansari M.S., 2022*); (*Ahmad M., 2020*); (*Areiqat A.Y.; Abu-Rumman A.; Al-Alani Y.S.; Alhorani A., 2019*); (*Asad, Humaira; Khan, Aatiqa; Faiz, Rafia, 2018*); (*Bakar, Suzaida; Yi, Amelia Ng Chui, 2016*); (*Bouteska, Ahmed; Regaieg, Boutheina, 2018*); (*Cao, MM; Nguyen, NT; Tran, TT, 2021*); (*Das A.R.; Panja S. 2022*); (*Hossain T.; Siddiqua P., 2022*); (*Jain J.; Walia N.; Gupta S., 2020*); (*Kartini K.; Nahda K., 2021*); (*Khan, I; Afeef, M; Jan, S; Ihsan, A, 2021*); (*Khilar R.P.; Singh S., 2019*); (*Madaan G.; Singh S., 2019*) (*Parveen, S; Satti, ZW; Subhan, QA; Jamil, S., 2020*); (*Raheja S.; Dhiman B., 2019*); and (*Yasmin F.; Ferdaous J., 2023*). One of the studies chose institutional bank customers as its population. (*Ogunlusi O.E.; Obademi O., 2021*). Another study carried out in the Egyptian context has chosen as its target population all types of investors operating in the Egyptian stock market (*Metawa, N; Hassan, MK; Metawa, S; Safa, MF, 2019*).

### **Sampling technique:**

According to Saunders et al. (2009), sample size is influenced by several variables such as time, funds, personnel, and investigator skills. For accurate outcomes using the statistical tools of data analysis in qualitative research, a minimum sample size of 100 respondents is needed (Hair et al., 2010). Regarding sampling methods used in the studies included in our systematic literature review, it can be seen that the majority of them used snowball or convenience sampling. Only a few studies opted for probability sampling at the time of data collection (*Abideen, Z. U., Ahmed, Z., Qiu, H., & Zhao, Y. 2023*); (*Khan, I; Afeef, M; Jan, S; Ihsan, A,*



2021) and (Yasmin F.; Ferdaous J., 2023). Such as the random sampling method which can be defined as a sample selection method involving intervals within a given numbered population, providing an equal likelihood of selecting any unit from the population (Bellhouse, 2005).

### **Data collection:**

Data collection is a technique for stating the actual research questions, assessing the validity of assumptions, and identifying the findings of the study. There are various approaches to gathering data and information from interviewees. In this regard, our systematic literature review highlighted the fact that the majority of the studies carried out were quantitative in nature and designed a structured questionnaire to gather primary data from the participants. Primary data are compiled through interviews and surveys (Hair et al. 2003). In addition, two elements should be taken into consideration when designing a questionnaire: the questionnaire items and the rating scale. The main statistical and analytical methods used are regression analysis, exploratory factor analysis, structural equation model, and correlation analysis. The three tables below provide information relating to the features of our study.

**Table 3: Information pertaining to the country, the context, and the type of biases**

<i>Authors</i>	<i>Country</i>	<i>Context</i>	<i>Types of biases</i>
<i>(Abideen, Z. U., Ahmed, Z., Qiu, H., &amp; Zhao, Y. 2023)</i>	Pakistan	Stock market	Overconfidence bias, disposition effect, and herding bias.
<i>(Adil, M., Singh, Y., &amp; Ansari, M. S. 2022)</i>	India	Different financial products	Overconfidence, risk-aversion, herding, and disposition.
<i>(Ahmad M., 2020)</i>	Pakistan	Stock market	Under-confidence heuristic-driven bias.
<i>(Areiqat, A. Y., Abu-Rumman, A., Al-Alani, Y. S., &amp; Alhorani, A. 2019)</i>	Amman	Stock market	Overconfidence, loss aversion, risk perception, and herding bias.
<i>(Asad, Humaira ; Khan, Aatiqa ; Faiz, Rafia, 2018)</i>	Pakistan	Stock market	Overconfidence, disposition effect, herding bias, gambler fallacy, hot hand fallacy.
<i>(Bakar, Suzaida; Yi, Amelia Ng Chui, 2016)</i>	Malaysia	Stock market	Overconfidence, conservatism, herding, availability bias.
<i>(Bouteska, Ahmed ; Regaieg, Boutheina, 2018)</i>	Tunisia	Stock market	Disposition bias.
<i>(Cao, MM ; Nguyen, NT ; Tran, TT, 2021)</i>	Vietnam	Stock market	Heuristic, prospect, and herding.
<i>(Das A.R.; Panja S. 2022)</i>	India	Stock market	Overconfidence, self-attribution, under- and over-reaction.
<i>(Hossain T. ; Siddiqua P. ,2022)</i>	Bangladesh	Stock market	Loss aversion, risk perception, overconfidence, herding.
<i>(Jain, J., Walia, N., &amp; Gupta, S. 2019)</i>	India	Stock market	Availability bias, anchoring bias, overconfidence bias, representative bias, regret aversion, loss aversion bias, herding, and mental accounting.
<i>(Kartini K. ; Nahda K. ,2021)</i>	Indonesia	Stock market	Anchoring, representativeness, loss aversion, overconfidence, optimism biases, herding.
<i>(Khan, I; Afeef, M; Jan, S; Ihsan, A, 2021)</i>	Pakistan	Stock market	Availability bias and representativeness bias.
<i>(Khilar R.P.; Singh S. , 2019)</i>	India (state of Odisha)	Stock market	Overconfidence bias and disposition effect.
<i>(Madaan G. ; Singh S., 2019)</i>	India	Stock market	Overconfidence, disposition effect, herding and anchoring bias
<i>(Metawa, N., Hassan, M. K., Metawa, S., &amp; Safa, M. F. 2019)</i>	Egypt	Stock market	Overconfidence, overreaction, under-reaction, and herd behavior.
<i>(Ogunlusi O.E. ; Obademi O., 2021)</i>	Nigeria	four surveyed investment banks	Heuristics, prospect theory.
<i>(Parveen, S., Satti, Z. W., Subhan, Q. A., &amp; Jamil, S. 2020)</i>	Pakistan	Stock market	Overconfidence and representative heuristic.
<i>(Raheja S. ; Dhiman B., 2019)</i>	India	Stock market	Overconfidence, regret, herding behavior, and conservatism.
<i>(Yasmin F.; Ferdaous J.,2023)</i>	Bangladesh	Stock market	Representativeness, overconfidence, hindsight, cognitive dissonance bias, herding, regret aversion, self-attribution, the illusion of control, and loss aversion.

*Source: Authors*

**Table 4: Information pertaining to the sample of the respondents**

<i>Authors</i>	<i>Gender distribution</i>	<i>Sample size</i>	<i>Target population</i>
<i>(Abideen, Z. U., Ahmed, Z., Qiu, H., &amp; Zhao, Y. 2023)</i>	31.33% female	600	Individual investors investing in the Pakistan Stock Exchange.
<i>(Adil, M., Singh, Y., &amp; Ansari, M. S. 2022)</i>	36.4 % female	253	Individual investors in the Delhi-NCR region.
<i>(Ahmad M., 2020)</i>	10.3 % female	203	Individual investors and the brokers who invest on behalf of investors.
<i>(Areqat, A. Y., Abu-Rumman, A., Al-Alani, Y. S., &amp; Alhorani, A. 2019)</i>	N/A	165	Individual investors who trade actively at Amman Stock Exchange during the research period.
<i>(Asad, Humaira ; Khan, Aatiqa ; Faiz, Rafia, 2018)</i>	3.7 % female	188	Individual investors and brokers who operate in Lahore office of the Pakistan Stock Exchange (PSX).
<i>(Bakar, Suzaida; Yi, Amelia Ng Chui, 2016)</i>	45.5 % female	200	Individual investors who trade in the Klang Valley.
<i>(Bouteska, Ahmed; Regaieg, Boutheina, 2018)</i>	40 % female	925	Tunisian individual investors.
<i>(Cao, MM; Nguyen, NT; Tran, TT, 2021)</i>	N/A	250	Vietnamese individual investors.
<i>(Das A.R.; Panja S. 2022)</i>	42.07 % female	145	Retail investors who operate in the NER of India.
<i>(Hossain T.; Siddiqua P., 2022)</i>	4.6 % female	281	Individual investors who operate in Dhaka Stock Exchange (DSE).
<i>(Jain J.; Walia N.; Gupta S., 2020)</i>	N/A	165	Individual investors operating in the capital market.
<i>(Kartini K.; Nahda K., 2021)</i>	43 % female	165	Individual investors who operate in Yogyakarta.
<i>(Khan, I; Afeef, M; Jan, S; Ihsan, A, 2021)</i>	22.5 % female	374	Individual investors who trade at Pakistan stock exchange
<i>(Khilar R.P.; Singh S., 2019)</i>	46 % female	125	Retail investors of Bhubaneswar region with more than three years of experience in investing.
<i>(Madaan G.; Singh S., 2019)</i>	11.8 % female	243	Individual investors who operate in the National Stock Exchange.
<i>(Metawa, N., Hassan, M. K., Metawa, S., &amp; Safa, M. F. 2019)</i>	21.35 % female	384	Individual investors, institutional investors, national and foreign investors operating in the Egyptian Stock Market.
<i>(Ogunlusi O.E. ; Obademi O., 2021)</i>	41.7 % female	180	Customers of the selected investment banks.
<i>(Parveen, S., Satti, Z. W., Subhan, Q. A., &amp; Jamil, S. 2020)</i>	N/A	446	Individual investors operating in the stock market.
<i>(Raheja S.; Dhiman B., 2019)</i>	N/A	500	Individual investors who invest through LSC Securities Ltd. in Punjab State.
<i>(Yasmin F.; Ferdaous J., 2023)</i>	32.3 % female	196	Individual investors who operate in the stock market of Bangladesh.

*Source: Authors*

**Table 3: Information pertaining to the methods and the main insights**

<i>Authors</i>	<i>Data collection method</i>	<i>Tools used for Analysis</i>	<i>Insights</i>
<i>(Abideen, Z. U., Ahmed, Z., Qiu, H., &amp; Zhao, Y. 2023)</i>	Structured questionnaire; random sampling method.	Normality test; structural equation modeling (SEM).	The current research revealed that financial literacy plays a moderating role in the relationship linking behavioral biases to market anomalies, and ultimately affects investors while investing. The research findings also confirm that behavioral biases and market anomalies are tightly linked and that both variables have a substantial effect on the investment decisions of investors.
<i>(Adil, M., Singh, Y., &amp; Ansari, M. S. 2022)</i>	Structured Questionnaire; a mixture of judgment and snowball sampling.	Pearson correlation and Hierarchical regression analysis.	The researchers' findings reveal that the impact of behavioral biases on investment decisions varies according to the investors' gender in the case of overconfidence bias and disposition effect and does not differ in the case of herding bias and risk aversion.
<i>(Ahmad M. ,2020)</i>	Structured questionnaire.	Structural equation modeling technique.	Under-confidence bias undermines the effectiveness of both short and long-term investment decisions, as investors suffering from under-confidence are more prone to underestimate their own knowledge and consequently cause low transaction volume.
<i>(Areiqat A.Y.; Abu-Rumman A.; Al-Alani Y.S.; Alhorani A. ,2019)</i>	Structured questionnaire ; convenient sampling technique.	Multiple regression and hierarchal regression analysis.	The results showed that there was a considerable effect of herding, loss aversion, and risk perception on the investment decisions of individual investors operating in the Amman Stock Exchange. The variable with the greatest impact is overconfidence.
<i>(Asad, Humaira ; Khan, Aatiqa ; Faiz, Rafia, 2018)</i>	Structured questionnaire.	Exploratory Factor Analysis (EFA); discriminant analysis using MANOVA.	This study validates that behavioral factors influence the decision-making process. In addition, the most impacting psychological factors are herding behavior and dependence on the expert's advice. The findings also show that the impacts of behavioral factors vary with age, income, or whether investors are investing for their own account or for others.
<i>(Bakar, Suzaida; Yi, Amelia Ng Chui, 2016)</i>	Structured questionnaire ; Structured questionnaire ; convenient sampling technique.	Multiple regression analysis.	The findings show that both availability bias and overconfidence bias have a positive considerable effect while conservatism had a considerable but negative effect on individual investor's decision-making. Moreover, herding bias has no considerable effect on the decisions of investors.
<i>(Bouteska, Ahmed; Regaieg, Boutheina, 2018)</i>	Secondary Data from January 2009 to September 2014	Weighted average cost method, Mann-Whitney U test, regression analysis.	The present study reveals the existence of disposition effect in the Tunisian context. It also showed that disposition effect depends highly on investors age, gender, trading volume. In addition, disposition effect is more present among men and younger investors. The study also expose the fact that disposition effect is stronger in up markets.
<i>(Cao, MM; Nguyen, NT; Tran, TT, 2021)</i>	Structured questionnaire.	Exploratory Factor Analysis, Confirmatory Factor Analysis and SEM.	The main results of this study show the considerable effect of behavioral biases on investment decision-making. Prospects have the greatest impact, followed by heuristics and herding, and the market has the weakest effect.
<i>(Das A.R.; Panja S. 2022)</i>	Structured questionnaire; snowball sampling technique.	Structural equation model (SEM), the artificial neural network (ANN).	The results of this study confirm that under-reaction is the highest influencing factor on investment decisions, that self-attribution is the second highest influencing factor on investment decisions, and that overconfidence is the third highest influencing factor on investment decisions. With regard to the control variables, the findings are relevant in the case of the age variable and insignificant in the case of the gender variable.

<b>(Hossain T.; Siddiqua P., 2022)</b>	Well-structured closed-end questionnaire.	Chi-square test, ANOVA, paired-samples t-test and descriptive analysis.	The main findings of the study show that individual investors operating in Bangladesh often invest emotionally. The same study revealed that risk perception and loss aversion have the greatest effect on investment decisions, while overconfidence has a moderate effect and herd behavior has a slight effect on investment decisions.
<b>(Jain J.; Walia N.; Gupta S., 2020)</b>	Structured questionnaire; snowball sampling method.	Fuzzy analytic hierarchy.	The results of the present study reveal that overconfidence bias, herding bias, regret aversion and loss aversion bias are the behavioral biases with the highest impact on investment decisions of individual investors.
<b>(Kartini K.; Nahda K., 2021)</b>	Structured questionnaire; snowball sampling method.	One-Sample t-test.	The findings of this research suggest that overconfidence, herding, anchoring, loss aversion, representativeness and optimism bias have a significant impact on individual investor's investment decisions.
<b>(Khan, I; Afeef, M; Jan, S; Ihsan, A, 2021)</b>	Structured questionnaire ; simple random sampling technique.	Structural equation model (PLS-SEM).	The study confirms that representativeness bias and availability bias have a considerable effect on investment decisions. The study also shows that long-term orientation of the investors has a significant moderating effect on the impact of representativeness bias on the investment decision.
<b>(Khilar R.P.; Singh S., 2019)</b>	Structured questionnaire; snowball sampling technique.	Descriptive analysis correlation analysis.	The results of this study imply that individual investors are influenced by overconfidence bias when making investment decisions. The results show that investors take media information into consideration, leading them to make poor investment decisions. Another sum up of this study is that media information causes disposition effect amongst individual investors.
<b>(Madaan G.; Singh S., 2019)</b>	Structured questionnaire ; convenience sampling technique.	Inferential statistics (regression) and descriptive statistics.	The findings of this study support that from four independent variables namely overconfidence, herding, anchoring and disposition effect, only two variables (overconfidence and herding) have a considerable effect on investment decision making. While other variables (disposition effect and anchoring) have no considerable effect on investment decisions.
<b>(Metawa, N; Hassan, MK; Metawa, S; Safa, MF, 2019)</b>	Structured questionnaire.	Partial multiple regression method.	The results of this study indicate that overreaction and under reaction, overconfidence and herding considerably influence investment decisions. In addition, demographic variables have a significant positive effect on investment decisions. The results also confirm that experience does not seem to account at the time of making investment decisions, but more experienced investors are more likely to neglect emotional factors.
<b>(Ogunlusi O.E.; Obademi O., 2021)</b>	Structured questionnaire; convenience sampling method.	Descriptive statistics; correlation and multiple regression analysis.	This study reveals a strong negative association between heuristics and investment decisions; there is likewise a high correlation linking heuristics and investment decisions. The results also confirm the existence of a considerable negative relationship between investment decisions and prospect theory; similarly, there is a significant correlation between the above two variables.
<b>(Parveen, S; Satti, ZW; Subhan, QA; Jamil, S., 2020)</b>	Structured questionnaire to get primary as well as stock market secondary data.	Discriminant validity and composite reliability, and then the	The results show that heuristics and biases are prevalent among investors when it comes to making investment decisions. Overconfidence acts as a mediator between representative bias and investment decision. The results show that investors operating on



		structural equation model (SEM).	the Pakistani stock market lack of financial literacy that would enable them to avoid behavioral biases that could hinder their investment decisions.
<i>(Raheja S.; Dhiman B., 2019)</i>	Structured questionnaire; Secondary data was collected from journals, books, websites; non-probability sampling technique.	Multiple regression test.	The study revealed a connection between risk tolerance, overconfidence and regret bias. When investing, individuals assume that they are capable of making all the right investment decisions, and are prepared to take on a high level of risk. The research also demonstrated a connection between investment decisions, overconfidence and regret biases. This means that behavioral biases can best explain investment decisions throughout risk tolerance. In addition, investors who consistently rely on past experience while making decisions tend to take on more risk, and eventually enhance their trading volume.
<i>(Yasmin F.; Ferdaous J.,2023)</i>	Structured questionnaire; probabilistic sampling.	Factor analysis.	The results showed that investors operating in Bangladesh were irrational and that various behavioral biases, in particular cognitive dissonance, regret aversion, loss aversion, and the illusion of control, had a considerable effect on investors' investment decisions. Furthermore, 55.63% of the variance in the variables could be explained by the most influential of the four commonly extracted factors.

*Source: Authors*

## 6. Discussion:

The area of behavioral finance fosters research into the impact of behavioral factors on the individual investor's financial behavior. In the present study, we have contributed to the corpus of knowledge by surveying recent studies carried out to pinpoint the main behavioral biases and how they influence individual investors' investment decisions. Studies conducted between 2013 and 2023 were included in this review.

Behavioral finance has affected investment decision-making. This thorough analysis has revealed that investors do fail to make rational decisions and that psychological biases do influence their decision-making behavior.

As indicated above, most of the studies (n= 18) are done in the context of stock markets only two deals with different financial avenues and investment banks. Concerning the types of biases in the proceeding studies, the vast bulk of the studies (n= 18) tried to explore the influence of disposition effect, herding bias, and overconfidence bias, on investment decision-making (singly or combined with other biases). The other biases identified in the studies carried out are anchoring bias, availability bias, cognitive dissonance bias, conservatism bias, gambler fallacy, hindsight bias, hot hand fallacy, loss aversion bias, the illusion of control bias, mental accounting bias, over-reaction, optimism bias, regret aversion, representative bias, risk aversion, risk perception, self-attribution bias, under confidence bias and under-reaction. The average sample size of the studies included in our systematic review is 299 participants (total of participants from the 20 studies: n= 5988).

As mentioned earlier, our systematic review aims to highlight the impact of behavioral biases on the investment decisions of individual investors. The findings of our analysis were able to identify 21 biases with different impacts on the investment decisions as shown in the table below. In what follows, we will confine ourselves to elucidating and discussing the results of the five biases most frequently addressed by the authors of the research identified in our literature review.

### Findings related to overconfidence bias:

A study done by Adil, M., et al. 2022 revealed that the impact of overconfidence on investors' investment decisions is positive and significant. According to Areiqat A.Y. et al (2019), overconfidence had a significant impact on the investment decisions of retail investors trading in the Amman Stock market. Another study done by Asad, H. et al (2018) validates that overconfidence positively influences the decision-making process. Bakar and Yi (2016) showed that overconfidence bias has a positive significant impact on investors' investment decisions. According to Das and Panja (2022), overconfidence influences investment decisions. Kartini and Nahla (2021), argue that overconfidence has a significant impact on individual's investment decisions. Khilar and Singh (2019) demonstrated that individual investors are impacted by overconfidence when making investment decisions. Madaan and Singh (2019) who tried to investigate the influence of behavioral biases reported a significant positive impact of overconfidence on investment decisions, with a significant value below 0.05. They ended the investigation by pointing out that individual investors have modest knowledge and are consequently inclined to make psychological errors. Metawa et al. (2019), indicate in their study that overconfidence had a significant influence on investors' investment decisions. Another study done by Hossain and Siddiqua (2022) shows that individual investors usually invest emotionally and that overconfidence has a moderating influence on investment decisions.

### Findings related to herding bias:

Abiden et al. (2023) demonstrated that herding bias has a substantial influence on investor's investment decisions. The main findings of Cao et al. (2021) investigation show that there is a

significant impact of herding bias on investment decisions. Jain and Gupta (2020), reveal that herding bias has a high impact on investment decisions, while the study done by Hussain and Siddiqua (2022) revealed the opposite. Another study done by Madaan and Singh (2019), supports that making financial decisions is significantly influenced by herding bias.

**Findings related to disposition effect:**

Bouteska and Regaied (2018) study revealed that the disposition effect has a positive significant impact on investor's investment decisions especially in bull markets. On the opposite, Adil et al. (2022) showed that the disposition effect was not statistically significant on investment decisions. The same study pinpointed that the moderating effect of financial literacy among female investors regarding the disposition effect was significant.

**Findings related to loss aversion:**

Areiqat et al. (2019) showed in their study that loss aversion has a significant effect on the investment decisions of individual investors. Hossain and Saddiqua (2022) revealed that loss aversion is one of the behavioral biases with the highest impact on investment decisions. Jain and Gupta (2020), support the same conclusion. Kartini and Nahda (2021), suggest that loss aversion has a significant positive impact on investment decisions.

**Findings related to representativeness bias:**

According to Kartini and Nahda (2021), representativeness bias has a significant impact on investment decisions. Khan et al. (2021), support that investors' long-term orientation undermines the effect of representativeness on investors' investment decisions. The results of the study conducted by Jain and Gupta (2020), support that representativeness bias has an insignificant impact on investment decisions. Parven et al. (2020), demonstrate in their research that overconfidence partially mediates the relationship linking the representativeness heuristic and investment decisions.

**Table 6: The influence of behavioral biases on investment decisions**

<b>Behavioral biases</b>	<b>Relationship between behavioral biases and investment decisions</b>	<b>Corresponding study</b>
<i>Overconfidence</i>	Positive and significant impact/ significant impact	(Adil M.; Singh Y.; Ansari M.S. ,2022); (Areiqat A.Y.; Abu-Rumman A.; Al-Alani Y.S.; Alhorani A. ,2019); (Asad, Humaira; Khan, Aatiqa; Faiz, Rafia , 2018); (Bakar, Suzaida; Yi, Amelia Ng Chui, 2016); (Das A.R.; Panja S. 2022); (Kartini K.; Nahda K. ,2021); (Khilar R.P.; Singh S. , 2019); (Madaan G.; Singh S., 2019); (Metawa, N; Hassan, MK; Metawa, S; Safa, MF, 2019); (Raheja S.; Dhiman B., 2019); (Yasmin F.; Ferdaous J.,2023)
	Insignificant impact	(Hossain T. ; Siddiqua P. ,2022) ; (Jain J. ; Walia N. ; Gupta S., 2020)
	No significant impact	(Abideen, Z. U., Ahmed, Z., Qiu, H., & Zhao, Y. 2023)
	Moderating effect of financial literacy is significant amongst female and male	(Adil M.; Singh Y.; Ansari M.S. ,2022)
<i>Herding</i>	Significant and positive impact	(Abideen, Z. U., Ahmed, Z., Qiu, H., & Zhao, Y. 2023); (Cao, MM; Nguyen, NT; Tran, TT, 2021); (Jain J.; Walia N.; Gupta S., 2020); (Kartini K.; Nahda K., 2021); (Madaan G.; Singh S., 2019); (Metawa, N; Hassan, MK; Metawa, S; Safa, MF, 2019).
	Significant and negative impact	(Adil, Mohd, Yogita Singh, and Mohd. Shamim Ansari, 2022)
	Insignificant impact (moderate and low effect)	(Areiqat A.Y.; Abu-Rumman A.; Al-Alani Y.S.; Alhorani A., 2019); (Hossain T.; Siddiqua P., 2022); (Yasmin F.; Ferdaous J., 2023).
	No significant impact	(Bakar, Suzaida; Yi, Amelia Ng Chui, 2016); (Raheja S.; Dhiman B., 2019)
	Moderating effect of financial literacy is significant amongst female and insignificant amongst male	(Adil M.; Singh Y.; Ansari M.S. ,2022)
<i>Disposition effect</i>	Significant effect	(Bouteska, Ahmed ; Regaieg, Boutheina, 2018)
	No significant impact	(Abideen, Z. U., Ahmed, Z., Qiu, H., & Zhao, Y. 2023); (Adil M.; Singh Y.; Ansari M.S. ,2022); (Madaan G.; Singh S., 2019)
	Insignificant impact	(Asad, Humaira ; Khan, Aatiqa ; Faiz, Rafia, 2018)
	Moderating effect of financial literacy is significant amongst female and insignificant amongst male	(Adil M.; Singh Y.; Ansari M.S. ,2022)
	Media response induces disposition effect	(Khilar R.P.; Singh S. , 2019)
<i>Loss aversion</i>	Significant impact (high impact)	(Areiqat A.Y.; Abu-Rumman A.; Al-Alani Y.S.; Alhorani A. ,2019); (Hossain T.; Siddiqua P. ,2022), (Jain J.; Walia N.; Gupta S., 2020); (Kartini K.; Nahda K. ,2021); (Yasmin F.; Ferdaous J.,2023)
<i>Representativeness bias</i>	Significant impact	(Kartini K.; Nahda K. ,2021) ; (Khan, I; Afeef, M; Jan, S; Ihsan, A, 2021)
	Insignificant impact ( moderate and low impact)	(Jain J .; Walia N.; Gupta S., 2020); (Yasmin F.; Ferdaous J.,2023)

	Overconfidence bias mediates the relationship between representative bias and investment decisions	(Parveen, S; Satti, ZW; Subhan, QA; Jamil, S., 2020)
<i>Anchoring</i>	Significant impact	(Kartini K. ; Nahda K. ,2021)
	Insignificant impact ( moderate and low impact)	(Jain J.; Walia N.; Gupta S., 2020)
	No significant impact	(Madaan G. ; Singh S., 2019)
<i>Availability bias</i>	Significant impact	(Bakar, Suzaida; Yi, Amelia Ng Chui, 2016); (Khan, I; Afeef, M; Jan, S; Ihsan, A, 2021)
	Insignificant impact	(Jain J.; Walia N.; Gupta S., 2020)
<i>Regret aversion bias</i>	Significant impact	(Jain J.; Walia N.; Gupta S., 2020); (Yasmin F.; Ferdaous J.,2023)
	Risk tolerance is a mediator between regret and investment decisions	(Raheja S. ; Dhiman B., 2019)
<i>Conservatism</i>	Negative and significant impact	(Bakar, Suzaida; Yi, Amelia Ng Chui, 2016)
<i>Self-attribution</i>	Significant impact	(Das A.R.; Panja S. 2022); (Yasmin F.; Ferdaous J., 2023).
<i>Under- and over-reaction</i>	Significant impact	(Das A.R.; Panja S. 2022)
	Under- and over-reaction mediates the relationship between demographic factors and investment decisions	(Metawa, N; Hassan, MK; Metawa, S; Safa, MF, 2019)
<i>Risk perception</i>	Significant impact	(Areiqat A.Y.; Abu-Rumman A.; Al-Alani Y.S.; Alhorani A. ,2019)
<i>Cognitive dissonance bias</i>	Significant impact	(Yasmin F. ; Ferdaous J., 2023)
<i>Gambler fallacy</i>	Insignificant impact	(Asad, Humaira; Khan, Aatiqa; Faiz, Rafia , 2018)
<i>Hindsight bias</i>	Significant impact	(Yasmin F. ; Ferdaous J., 2023)
<i>Hot hand fallacy</i>	Insignificant impact	(Asad, Humaira; Khan, Aatiqa; Faiz, Rafia , 2018)
<i>Illusion of control bias</i>	Significant impact	(Yasmin F. ; Ferdaous J., 2023)
<i>Mental accounting bias</i>	Insignificant impact	(Jain J.; Walia N.; Gupta S., 2020)
<i>Optimism biases</i>	Significant impact	(Kartini K. ; Nahda K. ,2021)
<i>Risk aversion</i>	Moderating effect of financial literacy is significant amongst female and insignificant amongst male	(Adil M.; Singh Y.; Ansari M.S. ,2022)
<i>Under confidence</i>	Considerable negative effect on short and long-term investment decision-making	(Ahmad M. ,2020)

Source: Authors



## 7. Conclusion:

This study seeks to investigate the influence of behavioral biases on the investment decision-making of individual investors in the context of emergent countries. The results of our systematic literature review indicate that individual investors' investment decisions are impacted by a variety of behavioral biases. A considerable body of work has been carried out on the following main types of biases: overconfidence bias, herding bias, and disposition effect. This systematic study provides an overview of the main types of biases affecting investment decisions with a significance that varies from one bias to another. It is crucial to mention that, behavioral finance is only a complement, and not a substitute for, standard financial theory, as it provides insights into phenomena that traditional financial theory is unable to explain.

To counter the negative consequences of behavioral biases on investment decisions, we recommend the following solutions to investors. Investors need to seek out expert pieces of advice and take a second glimpse at investment opportunities, rather than relying on their intelligence, which is inevitably subject to error and can easily, be influenced by emotional characteristics. Additionally, to reduce behavioral biases to zero, and prevent irrationality in the stock market, information symmetry is a necessity and investors need to ensure that the information they receive comes from reliable sources. While nobody is willing to bear losses, nor do investors want to waste the chance to make a profit. It is recommended, therefore, to draw up a sound investment plan in line with its own needs, and to take a certain degree of risk to the extent of its tolerance level, by selecting well-performing assets. Investors also have to be broadminded and abandon their hold on the past in a bid to embrace the inherently interactive nature of the stock market.

In conclusion, and to outline the gaps in the research on behavioral biases influencing investment decision-making. We have endeavored to cover all pertinent investigations and pinpointed the following gaps that are relevant to our research area. First, most of the selected studies used non-probabilistic sampling, and only a few used probabilistic sampling while collecting data. In addition, most studies used a larger sample of men than female investors. The review also shows that there is a focus on common behavioral biases such as overconfidence bias, herding bias, and disposition effect and has overlooked a large number of behavioral biases that also have an important impact on investment decisions. As we limited the scope of our research to emerging countries and the context of stock markets, future research can be carried out to investigate other less-studied behavioral biases in emergent countries that can influence individual investors' investment decisions.

## References:

- (1). Abideen, Z. U., Ahmed, Z., Qiu, H., & Zhao, Y. (2023). Do Behavioral Biases Affect Investors' Investment Decision Making? Evidence from the Pakistani Equity Market. *Risks*, 11(6), 109. <https://doi.org/10.3390/risks11060109>
- (2). Adil, M., Singh, Y., & Ansari, Mohd. S. (2022). How financial literacy moderate the association between behavioural biases and investment decision? *Asian Journal of Accounting Research*, 7(1), 17–30. <https://doi.org/10.1108/AJAR-09-2020-0086>
- (3). Ahmad, M. (2021). Does under confidence matter in short-term and long-term investment decisions? Evidence from an emerging market. *Management Decision*, 59(3), 692–709. <https://doi.org/10.1108/MD-07-2019-0972>
- (4). Areiqat, A. Y., Abu-Rumman, A., Al-Alani, Y. S., & Alhorani, A. (2019). Impact of behavioral finance on stock investment decisions applied study on a sample of investors at Amman Stock Exchange 23(2).

- (5). Asad, H., Khan, A., & Faiz, R. (n.d.). Behavioral biases across the stock market investors: evidence from Pakistan. *Pakistan Economic and Social Review*. <https://www.jstor.org/stable/26616737>
- (6). Babajide, A. A., & Adetiloye, K. A. (2012). Investors' Behavioural Biases and the Security Market: An Empirical Study of the Nigerian Security Market. *Accounting and Finance Research*, 1(1), p219. DOI : 10.5430/AFR.V1N1P219
- (7). Bakar, S., & Yi, A. N. C. (2016). The Impact of Psychological Factors on Investors' Decision Making in Malaysian Stock Market: A Case of Klang Valley and Pahang. *Procedia Economics and Finance*, 35, 319–328. [https://doi.org/10.1016/S2212-5671\(16\)00040-X](https://doi.org/10.1016/S2212-5671(16)00040-X)
- (8). Bellhouse, D. R. (2005). Systematic sampling methods. *Encyclopedia of Biostatistics*, 8.
- (9). Bouteska, A., & Regaieg, B. (2018). Investor characteristics and the effect of disposition bias on the Tunisian stock market. *Borsa Istanbul Review*, 18(4), 282–299. <https://doi.org/10.1016/j.bir.2018.05.004>
- (10). CAO, M. M., NGUYEN, N.-T., & TRAN, T.-T. (2021). Behavioral Factors on Individual Investors' Decision Making and Investment Performance: A Survey from the Vietnam Stock Market. *The Journal of Asian Finance, Economics and Business*, 8(3), 845–853. DOI:10.13106/JAFEB.2021.VOL8.NO3.0845k
- (11). Das, A. R., & Panja, S. (2022). An Empirical Investigation on the Influence of Behavioural Factors on Investment Decision Making. *Vision: The Journal of Business Perspective*, <https://doi.org/10.1177/09722629221131101>
- (12). De Bondt, W. F., & Thaler, R. H. (1995). Financial decision-making in markets and firms: A behavioral perspective. *Handbooks in operations research and management science*, 9, 385-410.
- (13). De Bondt, W.F.M., & Thaler, R.H. (1985). Does the stock market overreact? *Journal of Finance*, 40(3), 793-805.
- (14). decision making – a state-of-art literature review. *Review of Behavioral Finance*, 10(1), 2-41. <https://doi.org/10.1108/RBF-07-2016-0047>
- (15). Friedman, M., & Savage, L. J. (1948). The Utility Analysis of Choices Involving Risk. *Journal of Political Economy*, 56(4), 279-304. <http://doi.org/10.1086/256692>
- (16). Hair Jr., J., Black, W., Babin, B., & Anderson, R. (2010). *Multivariate Data Analysis - A Global Perspective* (7<sup>th</sup> Ed.). Upper Saddle River: Pearson Prentice Hall.
- (17). Hossain, T., & Siddiqua, P. (2022). Exploring the influence of behavioral aspects on stock investment decision-making: A study on Bangladeshi individual investors. *PSU Research Review*. <https://doi.org/10.1108/PRR-10-2021-0054>
- (18). Huckle, P. (2007). Behavioural finance and the psychology of investing. In Seminar, paper presented at Harvard Business School Association alumni dinner held on the 24th April.
- (19). Jain, J., Walia, N., & Gupta, S. (2019). Evaluation of behavioral biases affecting investment decision making of individual equity investors by fuzzy analytic hierarchy process. *Review of Behavioral Finance*, 12(3), 297–314. DOI : 10.1108/RBF-03-2019-0044
- (20). Kahneman, D., & Tversky', A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47(2). <https://doi.org/10.2307/1914185>
- (21). Kartini, K., & Nahda, K. (2021). Behavioral Biases on Investment Decision: A Case Study in Indonesia. *The Journal of Asian Finance, Economics and Business*, 8(3), 1231–1240. <http://koreascience.or.kr/article/JAKO202106438543762.page>
- (22). Khan, F., Afrin, F., & Rahman, M. A. (2015). Factors influencing investors' decisions in stock market investment in Bangladesh: a study on Khulna City. *Journal of Finance*

- and *Accounting*, 3(6), 198-204.  
<https://www.sciencepublishinggroup.com/article/10.11648/j.jfa.20150306.14>
- (23). Khan, I., Afeef, M., Jan, S., & Ihsan, A. (2021). The impact of heuristic biases on investors' investment decision in Pakistan stock market: Moderating role of long-term orientation. *Qualitative Research in Financial Markets*, 13(2), 252–274. <https://doi.org/10.1108/QRFM-03-2020-0028>
- (24). Khilar, R. P., Singh, Dr. S., & KIIT School of Management, KIIT Deemed University, Bhubaneswar, India. (2019). Influence of Behavioural Biases on Investment Decision Making in Bhubaneswar Region. *International Journal of Recent Technology and Engineering (IJRTE)*, 8(3), 8297–8301. DOI:10.35940/ijrte.C6592.098319
- (25). Madaan, G., & Singh, S. (2019). An Analysis of Behavioral Biases in Investment Decision-Making. *International Journal of Financial Research*, 10(4), 55. <https://doi.org/10.5430/ijfr.v10n4p55>
- (26). Metawa, N., Hassan, M. K., Metawa, S., & Safa, M. F. (2019). Impact of behavioral factors on investors' financial decisions: Case of the Egyptian stock market. *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 12(1), 30–55. <https://doi.org/10.1108/IMEFM-12-2017-0333>
- (27). Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group\*, T. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Annals of Internal Medicine*, 151(4), 264-269. <https://doi.org/10.1371/journal.pmed.1000097>
- (28). Nigam, R.M., Srivastava, S. and Banwet, D.K. (2018). Behavioral mediators of financial
- (29). Ogunlusi, O. E., & Obademi, O. (2021). The Impact of Behavioural Finance on Investment Decision-making: A Study of Selected Investment Banks in Nigeria. *Global Business Review*, 22(6), 1345–1361. <https://doi.org/10.1177/0972150919851388>
- (30). Olsen, Robert A. (1998). Behavioural Finance and its implications for Stock-Price volatility. *Financial Analyst Journal* 54:2, 10-17.
- (31). Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Bmj*, 372. <https://doi.org/10.1136/bmj.n71>
- (32). Parveen, S., Satti, Z. W., Subhan, Q. A., & Jamil, S. (2020). Exploring market overreaction, investors' sentiments, and investment decisions in an emerging stock market. *Borsa Istanbul Review*, 20(3), 224–235. <https://doi.org/10.1016/j.bir.2020.02.002>
- (33). Prosad, J. M., Kapoor, S., & Sengupta, J. (2015). Behavioral biases of Indian investors: a survey of Delhi-NCR region. *Qualitative Research in Financial Markets*, 7(3), 230-263.
- (34). Raheja, S., & Dhiman, B. (n.d.). (2019). Relationship Between Behavioral Biases and Investment Decisions: The Mediating Role of Risk Tolerance. chrome-extension://efaidnbmninnibpcapjpcgclclefindmkaj/https://dlsu-ber.com/wp-content/uploads/2019/07/4raheja-0719-revised2.pdf
- (35). Raiffa, H. (1968). Decision analysis: Introductory lectures on choices under uncertainty.
- (36). Ritter, J. R. (2003). Behavioral finance. *Pacific-Basin finance journal*, 11(4), 429-437. [https://doi.org/10.1016/S0927-538X\(03\)00048-9](https://doi.org/10.1016/S0927-538X(03)00048-9)
- (37). Saunders, M., Lewis, P., & Thornhill, A. (2009). Understanding research philosophies and approaches. *Research Methods for Business Students*, 4, 106-135.
- (38). Selden, G. C. (1912). *Psychology of the stock market: Human impulses lead to speculative disasters*. New York: Ticker Publishing.

- (39). Sewell, M. (2007). Behavioural Finance. Retrieved from <http://www.behaviouralfinance.net/behavioural-finance>
- (40). Shefrin, H. M., & Statman, M. (2000). Behavioral portfolio theory. *Journal of Financial and Quantitative Analysis* 35(2), 127–151.
- (41). Shefrin, H., & Statman, M. (1994). Behavioral capital asset pricing theory. *Journal of Financial and Quantitative Analysis*, 29, 323–349.
- (42). Simon, H. A. (1972). Theories of Bounded Rationality. In *Decision and Organization* (pp.161-177). North-Holland Publishing Company. [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/http://innovbfa.viabloga.com/files/Herbert\\_Simon\\_theories\\_of\\_bounded\\_rationality\\_\\_1972.pdf](chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/http://innovbfa.viabloga.com/files/Herbert_Simon_theories_of_bounded_rationality__1972.pdf)
- (43). Statman, M. (2008). What Is Behavioral Finance? *Handbook of Finance*, II(1), 79-84. <http://doi.org/10.1002/9780470404324.hof002009>
- (44). Thaler, R. (1999) “Mental Accounting Matters”, *Journal of Behavioural Decision Making*, 12, (1999): pg. 183-206. <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://people.bath.ac.uk/mnsrf/Teaching%202011/Thaler-99.pdf>
- (45). Tversky, A., & Kahneman, D. (1981). The Framing of Decisions and the Psychology of Choice. *Science*, 211, 453–458. <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/http://www.stat.columbia.edu/~gelman/surveys.course/TverskyKahneman1981.pdf>
- (46). Yasmin, F., & Ferdaous, J. (2023). Behavioral biases affecting investment decisions of capital market investors in Bangladesh: A behavioral finance approach. *Investment Management and Financial Innovations*, 20(2), 149–159. [http://dx.doi.org/10.21511/imfi.20\(2\).2023.13](http://dx.doi.org/10.21511/imfi.20(2).2023.13)