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Herding as behavior investing: A bibliometric analysis

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Abstract

Behavioral investing seeks to understand and exploit psychological biases in financial decision-making. It is based on the idea that investors are often influenced by psychological factors such as emotions, heuristics, and social norms, which can lead to systematic errors in judgment. These biases can cause investors to make irrational or suboptimal decisions, which can have negative consequences for their financial well-being. Behavioral investors aim to identify these biases to make more rational and profitable investment decisions. This research using bibliometric analysis from 246 article was published in a reputable (SCOPUS), peer-reviewed journal that is included in an index of scholarly literature. Bibliometric analysis is a method of analyzing and quantifying the characteristics of a set of publications, to study the trends and patterns in the existing research on herding behavior. Based on the research reviewed, it appears that herding behavior is a complex phenomenon that is influenced by various factors, including psychological biases, environmental conditions, and market conditions. It is often studied in the context of behavioral finance and investor behavior, and is relevant to the study of market efficiency and capital markets.

Keywords: *behavior finance; behavior investing; herding behavior; bibliometric*

Abstrak

Investasi perilaku berusaha untuk memahami dan mengeksploitasi bias psikologis dalam pengambilan keputusan keuangan. Ini didasarkan pada gagasan bahwa investor sering dipengaruhi oleh faktor psikologis seperti emosi, heuristik, dan norma sosial yang dapat menyebabkan kesalahan sistematik dalam penilaian. Bias ini dapat menyebabkan investor membuat keputusan yang tidak rasional atau suboptimal, yang dapat menimbulkan konsekuensi negatif bagi kesejahteraan finansial mereka. Investor perilaku bertujuan untuk mengidentifikasi bias ini untuk membuat keputusan investasi yang lebih rasional dan menguntungkan. Penelitian ini menggunakan analisis bibliometrik dari 246 artikel yang diterbitkan dalam jurnal bereputasi (SCOPUS), peer-review yang termasuk dalam indeks literatur ilmiah. Analisis bibliometrik adalah metode analisis dan kuantifikasi karakteristik sekumpulan publikasi, untuk mempelajari tren dan pola dalam penelitian yang ada tentang perilaku penggembalaan. Berdasarkan kajian penelitian, tampak bahwa perilaku herding merupakan fenomena kompleks yang dipengaruhi oleh berbagai faktor, antara lain bias

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psikologis, kondisi lingkungan, dan kondisi pasar. Ini sering dipelajari dalam konteks keuangan perilaku dan perilaku investor, dan relevan dengan studi efisiensi pasar dan pasar modal.

***Kata kunci**: perilaku keuangan; investasi keperilakuan*; *perilaku herding*; *bibliometric*

INTRODUCTION

Herding behavior refers to individuals' tendency to mimic a larger group's actions, such as a crowd or market trend. In the context of investing in the stock market in a VUCA environment, herding behavior can be particularly dangerous. For example, if a stock or market sector is experiencing a sudden surge in popularity, investors may be tempted to jump on the bandwagon and buy-in, even if the underlying fundamentals of the investment do not justify such a move. One consequence of herding behavior is that it can lead to market inefficiencies, as large groups of investors move in the same direction, creating a momentum effect that drives prices away from their fundamental values. This can lead to price bubbles and crashes, as seen in the dot-com bubble of the late 1990s and the subprime mortgage crisis of 2008.

Another consequence of herding behavior is that it can exacerbate systemic risk. When large groups of investors move in the same direction, they can create a self-reinforcing feedback loop that amplifies market volatility and increases the likelihood of financial contagion. Herding behavior can also have implications for macroeconomic policy. For example, if a large number of investors all move out of a particular market or asset class, it can create significant capital outflows that can put pressure on the balance of payments and exchange rates, potentially leading to broader macroeconomic instability.

Herding behavior among investors can take two forms: irrational and rational. Irrational herding occurs when investors blindly follow the actions of others without conducting their analysis or evaluation of an investment opportunity. This can lead to bubbles and overvaluation, as investors may be swayed by the perceived wisdom of the group rather than by the underlying fundamentals of the investment.

On the other hand, rational herding occurs when investors make informed decisions to follow the actions of others because they perceive that doing so will be beneficial. For example, if a company releases positive news about its financial performance, investors may rationally decide to buy its stock because they believe that the news is a sign of future success. Similarly, if a company experiences a negative event, such as a product recall or regulatory fine, investors may rationally decide to sell its stock because they believe that the event will negatively impact the company's financial performance. Specifically, an inefficient capital market, such as that of an emerging country, has a longer price adjustment process (Chang et al., 2012).

Herding refers to individuals' tendency to mimic a larger group's actions, such as a crowd or market trend. This can lead to irrational decision-making, as people may make choices based on the perceived wisdom of the group rather than on their analysis and evaluation of a situation. Investor herding behavior is based on investor psychology to follow the performance of others (Chang et al., 2020). Institutional investors are interesting to analyze not only because they have become very large, but also because detailed asset-level portfolios over time (unavailable at the household or retail-investor level) are sometimes accessible (Raddatz & Schmukler, 2013). Regarding irrational herding, it is more likely that individual rather than institutional investors will be involved. Individual investors tend to exhibit predilections for relatively short-term holding periods, high turnover trading, and investment

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traits that are characteristically less rational than those of institutional investors (Chang et al., 2012).

Behavioral investing is an investment strategy that seeks to understand and exploit psychological biases in financial decision-making. It is based on the idea that the decisions of investors are often influenced by psychological factors such as emotions, heuristics, and social norms, which can lead to systematic errors in judgment. Behavioral investors aim to identify and correct these biases to make more rational and profitable investment decisions. Irrational herding behavior, which is blindly investing in crowded stocks during a specific period, will push the target stocks' returns down or up (Chang et al., 2012).

There are many researchers who have searched for variables related to herding. On a keyword analysis of 221 words on herding behavior in the capital market, this study found it is often associated with institutional and financial crisis investors (Komalasari et al., 2020). The purpose of this research is to reveal research trends related to herding using bibliometric analysis, with the following research questions: How is trend research regarding herding as investment behavior? What topics are related to herding behavior? How deep is the explanation from previous research regarding herding behavior?

LITERATURE REVIEW

Behavior finance and herding behavior

Behavioral finance is the study of the influence of psychology on the behavior of investors or financial analysts. It is based on the idea that investors are not always rational and are influenced by their own biases, such as emotions, heuristics, and social norms. These psychological factors can lead to systematic errors in judgment, which can affect financial markets in various ways, such as by causing mispricings, bubbles, and crashes. Behavioral finance researchers aim to understand and exploit these psychological biases to make more rational and profitable investment decisions.

Financial herding behavior should be distinguished from pseudo-herding behavior, even if it mimics other investors' behaviors. Pseudo-herding behavior involves similar decisions taken by investors with the same data set when they are faced with the same problem. Pseudo-herding behavior can also be termed as unconscious herding behavior (Kapusuzoglu, 2011). In unconscious (pseudo) herding behavior, investment decisions made are effective decisions, for this type of herding behavior is based on similar information, similar investment strategies, and similar risk approaches (Chen et al., 2007).

Table 1. The several ways that herding behavior are defined

Author	Definition of herding behavior
Gajewski (2018)	Herding behavior is defined as a situation where individual investors follow the behavior of a larger group of investors or the market, rather than making their own independent investment decisions
Nofsinger (2004)	Herding is defined as a phenomenon where investors follow the actions of others without considering their own analysis and evaluation of the information available to them
Barber & Odean, (2000)	Herding behavior is the tendency of individuals to mimic the actions of a larger group, such as a crowd or market trend. It can involve buying or selling the same stocks as others, or adopting similar investment strategies
Chang, Cheng, & Khorana (2004)	Herding behavior is characterized by the convergence of investment decisions among a group of individuals, leading to the adoption of similar or identical investment strategies

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Kacperczyk, Sialm, & Zheng (2005)	Herding behavior refers to the tendency of investors to imitate the actions of others, rather than making independent investment decisions based on their own analysis and evaluation of available information

Source: Processed by researcher

The reasons for herding behavior include rational investing based on an adjustment to information and irrational investing based on investor sentiments (Chang et al., 2012). Financial literature defines 'herding' as the behavioral similarity brought about by the concurrent interaction of individuals whereas the linked topic of 'informational cascades' is defined as the behavior of managers not considering their personal information and knowledge but simply observing the action of other managers and then making the same choice (Andreu et al., 2009). Behavioral law and economics scholars studying the growth of financial firms' technological capabilities have attributed decision science to irrational consumer decisions, it also includes the subsequent effects on the markets. Behavioral Finance attempts to explain the reasoning patterns of investors and measures the influential power of these patterns on the investor's decision-making. The central issue in behavioral finance is explaining why market participants make irrational systematic errors contrary to the assumption of rational market participants.

Herding behavior among investors occurs when the majority of them sells or buys the same or similar stocks at the same time, meaning that they adopt identical or similar investment strategies (Stein & Scharfstein, 1990). There are several identified causes of herding behavior among investors. Fund managers may decide not to perform the internal processing of actual information (Stein & Scharfstein, 1990), and imitate others' investment strategies (Dass et al., 2008) to maintain their reputation (Yang, 2011). The level of herding increases when important movements of the strategic allocations are required as well as when the amount ratio is considered (Andreu et al., 2009). However, herding behavior can lead to significant mispricing, and might create additional risks in financial markets (Chang et al., 2020).

The extant literature has concentrated on empirical studies of herding behavior in financial stock markets to explain the volatility of stock returns (Christie & Huang, 1995). Herding behavior as an obvious intent to copy the behavior of other investors, which can destabilize markets and increase volatility (Bikhchandani & Sharma, 2012). Herding can contribute to market volatility and might mean that managers are not generating independent assessments and not providing distinct services to the underlying investors. The analysis of herding also helps to more broadly understand the role of institutional investors in capital market activity, such as capital raising and trading (Raddatz & Schmukler, 2013).

RESEARCH METHOD

This study aims to use a bibliometric approach to analyze the existing research on herding behavior in the context of investment decision-making. Bibliometric analysis involves quantifying and analyzing the characteristics of a set of publications, such as the number of articles published on a particular topic, the journals in which they are published, and the authors who contribute to the literature. The purpose of this research is to examine the trends and topics that have been discussed in previous studies on herding behavior, and to synthesize this information to better understand how herding behavior can be applied effectively in the context of investment decisions made by individuals and institutions. The research will involve reviewing many articles and other publications on herding behavior and using statistical techniques to identify patterns and trends in the data. By doing this, the

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researchers hope to gain a more comprehensive understanding of the factors that influence herding behavior and how it can be managed or exploited in the investment process.

Bibliometric analysis involves the statistical analysis of publication and citation patterns in a particular field or research area. It uses tools and techniques to identify trends, patterns, and relationships in the literature, and to understand the impact and influence of research in a given field. VOSviewer is a software tool that can be used for bibliometric analysis, specifically for visualizing and analyzing large-scale citation networks. It allows users to create maps of citation patterns in a particular field or research area, and to identify key papers, authors, and institutions that are influential within that field. To conduct a bibliometric analysis, the researcher must first define the research area or topic to be studied, and then search for relevant studies using a combination of keywords and Boolean operators. The selected studies are then reviewed in detail, and relevant data are collected and organized. This data is then analyzed using visualization techniques such as Network Visualization, Overlay Visualization, and Density Visualization. Finally, the results are interpreted and reported, often through the use of summary tables, graphs, or plots, and a written report or article.

1. **Defining search keywords**
   A literature search was conducted in December 2022, using the keyword 'Behavior Investing'. PoP (publish or Perish) software with database from Google Scholar is used to collect data. Herding behavior is a phenomenon that falls under the broader category of behavioral investing, which is an investment strategy that seeks to understand and exploit psychological biases in financial decision-making. Conducting a search using the term "behavioral investing" can give you an idea of how much research has been conducted on this subject and the specific topics that have been studied. Within the field of behavioral investing, there is a significant amount of research on herding behavior, which refers to the tendency of individuals to mimic the actions of a larger group, such as a crowd or market trend. By searching for articles or other publications on "herding behavior" or "herding and behavioral investing," you can get a sense of the extent of the research on this specific topic and the key issues that have been addressed in the literature. This can help you to better understand the current state of knowledge on herding behavior and its implications for investment decision-making.

2. **Searching for relevant studies**
   The following step involves carrying out an exhaustive exploration of existing literature to locate all pertinent research that satisfies the inclusion criteria. This may necessitate the exploration of several databases like PubMed, Web of Science, and Google Scholar, and applying a combination of keywords and Boolean operators to refine the search.

3. **Screening and selection of studies**
   Once the relevant studies have been identified, the next step is to screen them for inclusion in the review. This involves evaluating the studies based on their relevance, quality, and suitability for review. Only studies that meet the inclusion criteria and are of sufficient quality will be included in the review using VOSviewer.

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Table 2. Inclusive and exclusive criteria

No	Criteria	Inclusive	Exclusive
1	Mention "behavior investing"	998	-
2	Was published in a reputable (SCOPUS), peer-reviewed journal that is included in an index of scholarly literature	246	752
3	In the form of journal articles that can be downloaded and are in English	206	40
4	Relevant to the specific research question or topic of interest	37	169

Source: Processed by researcher

4. **Analyze the data**
   This allows the researcher to identify trends, patterns, and relationships in the data from output visualization, such as Network Visualization, Overlay Visualization, and Density Visualization.

5. **Interpret and report the results**
   The final step in a bibliometric analysis is to interpret and report the results. This may involve creating summary tables, graphs, or plots to visualize the data, and writing a report or article to describe the findings and their implication.

RESULTS AND DISCUSSION

The research findings show that the article written by Dass, N., Massa, M., & Patgiri, R. (2008). Mutual funds and bubbles: The surprising role of contractual incentives. Review of Financial Studies, is the most cited article with a total of 67 citations in trend panels related to Herding Behavior. Based on the results of the review, it appears that herding behavior is often studied in the context of behavioral finance and investor behavior. This suggests that researchers are interested in understanding the psychological factors that contribute to herding behavior and how it influences financial decision-making. The review also found that herding behavior is often associated with other topics, such as overconfidence and mutual funds. This suggests that there are a range of factors that can influence herding behavior, and that it is a complex phenomenon with multiple causes and consequences.

How is trend research regarding herding as behavior investing?

Based on the overlay visualization, it appears that the trend of discussing herding behavior as a topic in the research literature has only gained significant attention in recent years. This may be due to the increasing complexity and uncertainty of the business environment, which has made the phenomenon of herding more common. The trend of discussing behavioral finance has also gained significant attention in recent years, which suggests that the behavioral aspect of financial decision-making is an increasingly important topic of study.

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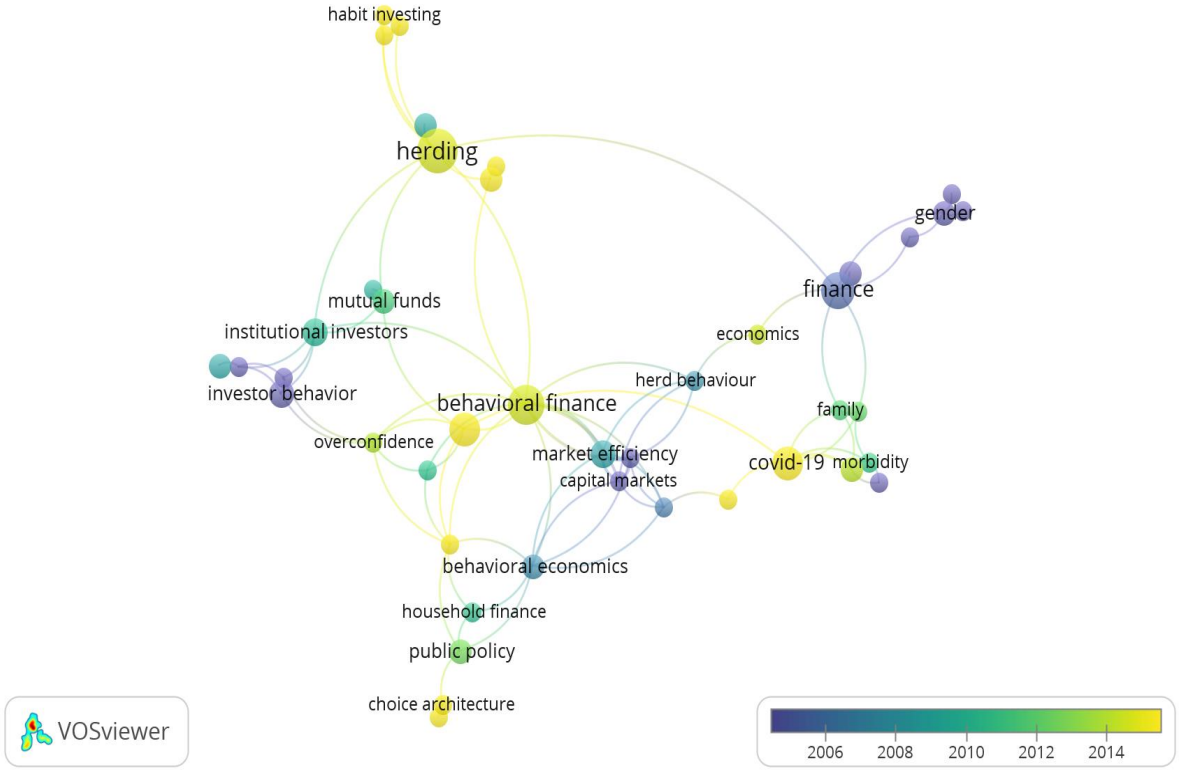

Figure 1. Bibliometric output - overlay visualization (Source: VOSviewer, 2022)

The review also found that environmental conditions, such as economic crises, health crises (such as the COVID-19 pandemic), and market conditions, can influence the growth of herding behavior. This suggests that external events or factors can have a significant impact on the prevalence of herding behavior and the decisions made by investors. By understanding the environmental factors that contribute to herding behavior, researchers may be able to develop strategies to mitigate its effects and improve investment decision-making.

This trend may be due to the increasing recognition of the role that psychological biases and other behavioral factors play in financial decision-making, and the need to understand and mitigate their impact on investment outcomes. The overlay visualization also suggests that other topics related to finance, investor behavior, capital markets, and market efficiency have been discussed for longer periods of time, possibly due to the longer history of financial management as a discipline. Overall, these trends suggest that the study of behavioral finance and herding behavior is an active and growing area of research, with increasing relevance to the field of finance and the practice of financial management.

What topics are related to herding behavior?

Herding behavior is typically studied in the fields of finance, economics, and psychology. In particular, it is commonly talked about in the area of behavioral finance, which examines how psychology impacts the actions of investors and financial analysts. In addition, herding behavior is also relevant to the study of market efficiency and capital markets, and may be of interest to researchers in these areas. Other disciplines that may be interested in herding behavior include sociology, anthropology, and political science, as it can also have implications for social and political phenomena.

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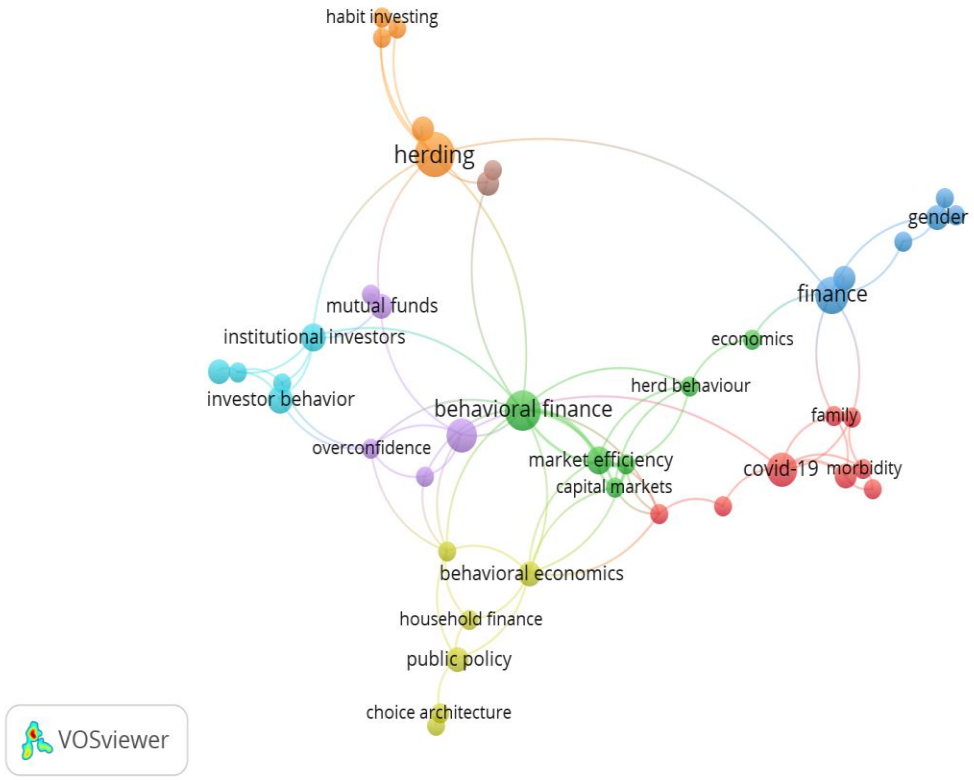

Figure 2. Bibliometric output – network visualization (Source: VOSviewer, 2022)

There are many topics that are related to herding behavior. Some of the topics that have been identified in research on this subject include behavioral finance, investor behavior, market efficiency, capital markets, mutual funds, economic crises, health crises, market conditions, etc. The results of a bibliometric search using a collection of journals yielded 163 keywords related to behavioral investing and herding behavior. These keywords were then grouped into 8 clusters, which represent different themes or areas of focus in research on these topics. A total of 43 topics emerged from the search using VOSviewer, covering a range of areas within the research areas of investment behavior and herding behavior. However, not all these topics are equally prevalent in the research literature, and some may be more important or influential than others.

To help clarify and contextualize these topics, the researchers provided definitions of each topic from experts in the field. These definitions can provide a useful starting point for further research and analysis and can help to better understand the key issues and concepts related to behavioral investing and herding behavior. Overall, the results of this bibliometric search suggest that there is a significant amount of research on these topics, and that there are many different areas of focus within the broader field of behavioral investing and herding behavior.

Table 3. The result items from the bibliometric process (having more than two occurrence)

No	Item	Cluster	Links	Total links strenghts	Occurancy
1	Covid-19	1	6	7	6
2	Stress	1	4	5	3
3	Behavioral finance	2	13	18	8

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4	Capital markets	2	6	9	2
5	Herd behavior	2	5	5	2
6	Investor psychology	2	6	9	2
7	Market efficiency	2	6	11	4
8	Finance	3	7	7	7
9	Behavioral economic	4	8	8	3
10	Financial literacy	4	7	7	2
11	Herding behavior	5	6	6	6
12	Overconfidence	5	6	6	2
13	Individual investor	6	4	5	2
14	Institutional investor	6	6	6	4
15	Investor behavior	6	4	5	4
16	Herding	7	9	9	10
17	Investigating herding	7	3	5	2

Source: Processed by researcher

Based on the information provided, it appears that behavioral finance is a more frequently discussed topic in the research literature on investing and herding behavior, as indicated by the higher number of links (13) and higher total strength of links (18) in cluster 2. In comparison, herding is found in cluster 7 with a lower number of links (9) and lower total link strength (9). This suggests that behavioral finance is a more popular or influential topic in the research literature on these topics.

Despite this difference in frequency, both behavioral finance and herding behavior are important topics in the field of marketing and may be of interest to researchers and practitioners. Behavioral finance is concerned with understanding and exploiting psychological biases in financial decision-making, and herding behavior is a phenomenon that can influence financial decision-making and market outcomes. By studying these topics, researchers and practitioners may be able to develop strategies to mitigate the effects of psychological biases and improve investment decision-making.

How deep is the explanation from previous research regarding herding behavior?

Based on the results of density visualization, it appears that the topics of finance, behavioral finance, investor behavior, herding, and COVID-19 are among the most frequently discussed topics in the research area of investing behavior and herding behavior. This suggests that these topics are central or fundamental concepts in this field of research and are of particular importance to researchers and practitioners working in this area. The density visualization also identifies two medium-sized topics, namely COVID-19 and investor behavior, which suggests that these topics have received significant attention in the research literature and may be important areas of focus for future research.

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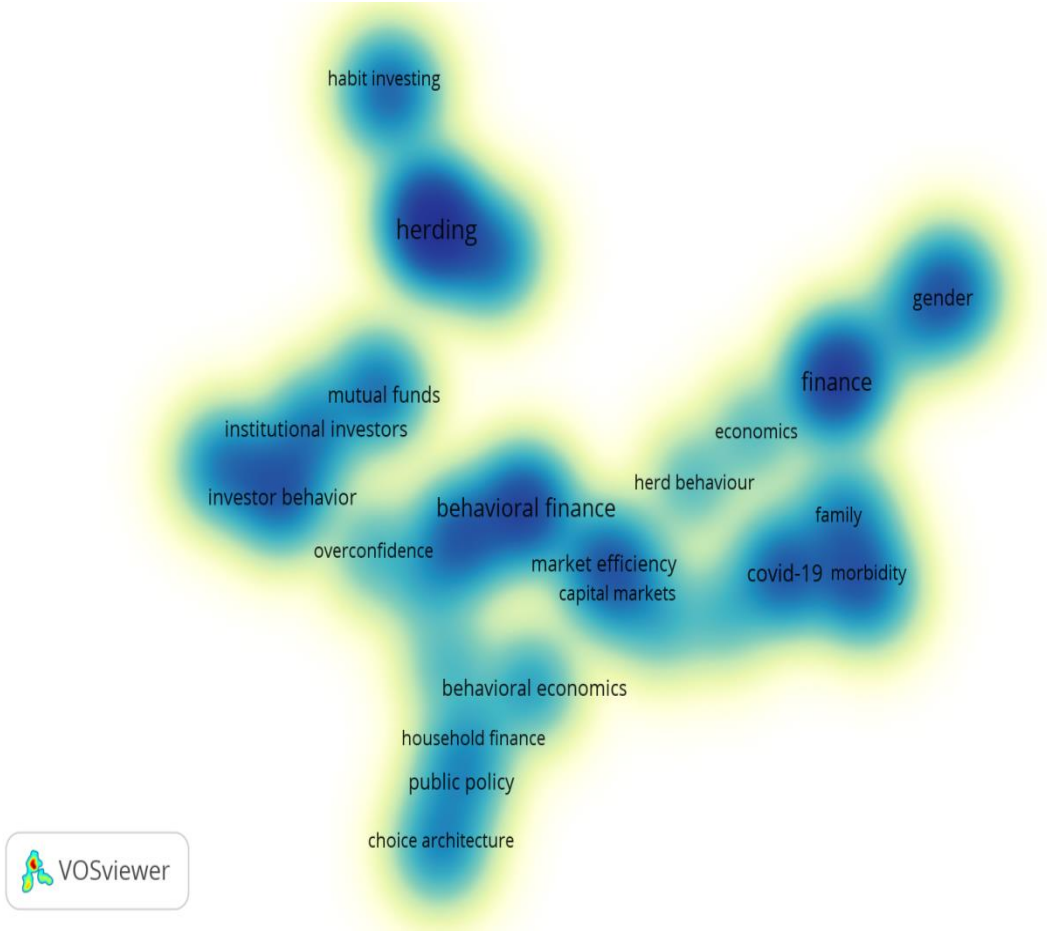

Figure 3. Bibliometric output - density visualization (Source: VOSviewer, 2022)

It is important to note that the size or importance of a topic in a research area does not necessarily reflect its inherent value or significance. Rather, it may simply reflect the level of attention and focus that has been paid to the topic in the research literature. The results of density visualization can provide insight into the main topics and focus areas within a research area and can help researchers to understand the research landscape in a particular field. Overall, the results of density visualization can be a useful tool for identifying trends and patterns in the research literature and for guiding future research efforts.

Recommendation for users and investors to avoid making investment decisions based solely on the actions of others. Instead, they should conduct their own research and analysis of the fundamentals of the companies or assets they are interested in investing in, and base their decisions on this analysis. This can help them avoid the negative consequences of herding behavior, such as buying overvalued assets or selling undervalued assets, which can lead to losses.

Companies should strive to communicate their performance and prospects effectively to the market and investors, in order to reduce the information asymmetry that can contribute to herding behavior. Additionally, they should focus on maintaining and improving their financial and operational performance, which can increase investor confidence and reduce the likelihood of herd behavior. And regulators can play a role in reducing the negative impact of herding behavior on the markets by enforcing transparency and disclosure rules and promoting competition in the market. They can also work to reduce the impact of market-wide shocks, such as global economic crises or pandemics, that can trigger herding behavior among investors.

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CONCLUSION

Herding behavior is a phenomenon that falls under the broader category of behavioral investing, which is an investment strategy that seeks to understand and exploit psychological biases in financial decision-making. Behavioral investing is based on the idea that investors are often influenced by psychological factors such as emotions, heuristics, and social norms, which can lead to systematic errors in judgment. By studying these biases and developing strategies to mitigate their effects on decision-making, behavioral investors aim to make more rational and profitable investment decisions. Research on herding behavior has identified a number of factors that can contribute to this phenomenon, including social influence, information cascades, and the desire to conform to group norms. In the context of investing, herding behavior can lead to irrational decision-making, as people may make choices based on the perceived wisdom of the group rather than on their own analysis and evaluation of a situation. This can result in overvaluation of certain stocks or market sectors, and can ultimately lead to significant losses when the bubble bursts.

In general, research on herding behavior and other topics in behavioral investing may be limited by the availability of data and the difficulty of accurately measuring psychological biases and their impact on decision-making. Additionally, research on this topic may be limited by the complexity of the financial markets and the difficulty of isolating the specific factors that influence investment decisions. Other potential limitations could include the difficulty of generalizing findings from one context to another, or the potential for bias in the selection and interpretation of data. There are several potential areas for future research on herding behavior in the context of investment decision-making. Some potential directions for research include: examining the impact of different types of information on herding behavior: Research could explore how the availability and accuracy of different types of information, such as financial statements, analyst reports, or social media posts, influence herding behavior. Then investigating the role of institutional investors in herding: Research could examine the extent to which institutional investors, such as mutual funds or pension funds, contribute to herding behavior, and how their actions impact the behavior of individual investors. Besides, developing strategies to mitigate herding behavior: Researchers could explore ways to reduce the influence of herding behavior on investment decisions, such as through the use of behavioral nudges or education programs. Furthermore, examining the role of social media in herding behavior: With the increasing use of social media for financial information and communication, research could investigate how social media platforms influence herding behavior and the dissemination of information. And, analyzing herding behavior in different market environments: Research could examine how herding behavior differs in different market conditions, such as bull markets, bear markets, or times of economic crisis.

Based on the research reviewed, it appears that herding behavior is a complex phenomenon that is influenced by various factors, including psychological biases, environmental conditions, and market conditions. It is often studied in the context of behavioral finance and investor behavior, and is relevant to the study of market efficiency and capital markets. Other topics that are related to herding behavior include mutual funds, economic crises, health crises, and market conditions. The trend of discussing herding behavior as a topic in the research literature has gained significant attention in recent years, and is an active and growing area of research. Future research may wish to focus on the role of specific psychological biases in herding behavior, or on strategies to mitigate its effects on investment decision-making.

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