A Critical Review of Herd Behaviour in Capital Markets: 
A Bibliometric Analysis

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Abstract: During recent few years, a growing number of associated researches on herd behaviour are being published with respect to investment in stock markets, forex market, etc. Therefore, a bibliographic analysis of such publications may provide a path to some new topics and future research trends. The global literatures between 1983 and 2022 were scanned using fifteen terms related to herd behaviour in finance as keywords to reach the related publications. After screening, 1439 publications related to herd behaviour were identified. The term “Herding” appeared as the most frequent keyword. The highest ranking journal was SSRN Electronic Journal and the most cited journal was Journal of Empirical Finance. Thomas Lux from Kiel University is the most cited author. United States made the outstanding contribution within this important area. Current growth trends are predicted to rapidly increase the number of global publications on Herd Behaviour. Financial Literacy, crypto-currency market and mental accounting may possibly be the hotspots in the future.

1. Introduction

Herd behaviour is one of the psychological biases in the arena of behavioural finance whichmeans imitating the actions of other people. In financial markets, investors might mimic the actions and decisions taken by others regarding investment. They do not make decisions on the basis of the information available in the market which leads to changes in the value of securities. Thus, presence of herding causes prices to deviate from their ultimate value and provide opportunities for profitable trading. Christie and Huang (1995) has described the herd behaviour as for those who used to follow market consensus even if they don’t agree to it and ignoring their own analysis. Herd behaviour can destabilize the market by shifting the securities far from its fundamental value as prices of shares not
only reflect the rational decisions of investors but also irrational investment decisions taken by them (Demirer and Kutan, 2005).

However, there has not been much review analysis conducted on Herd Behaviour of investors. The study has concentrated the analysis on investment, business and economy. As it has been found that there is more need to find out the research gap so that future trends could be identified and more information can be acquired from these references. Therefore, the Bibliometric analysis was performed to provide a broader understanding of Herd Behaviour in finance and direction of future research topics. Bibliometric analysis has been defined by different researchers in their own ways as follows:

Bibliometric is a statistical technique which can quantitatively analyse the research papers concerning one special topic via mathematical ways (Chen, Dubin & Kim et al., 2014). “Bibliometric analysis is a quantitative research approach that employs statistical and computational methods to analyze and visualize patterns and trends in the scientific literature” (Nidhi and Garima, 2023). In the words of Saini and Sharma (2022), “It is a statistical method which is used for analysis of books, articles, documents and other publications on basis of scientific data”.

It can also access the quality, analyse the key areas of researches and predict the future direction of the studies. The Dimensions online database contains almost all the significant and relevant research papers which also offer built-in analysis tools to produce representative figures. Search results from Dimensions database can be exported to software such as VOSviewer for further analysis.

2. Literature Review

Most of the researches regarding herd behaviour were mainly concentrated on the financial markets. Many authors focused on finding out the presence of herd behaviour in this research field in developed countries (Nahmeret et al., 2019; Cai et al., 2017; Lan, 2014; Kremer and Nautz, 2013; Chiang et al., 2013; Henker and Mitsios, 2006). Less emphasis has been granted to the analysis of herd behaviour in the emerging markets (Lao and Singh, 2011; Kumar & Bharti, 2017; Jose et al., 2018). Some authors found the presence of herd behaviour in the stock market (Dhall and Singh, 2020; Balcilar et al., 2014), commodities market (Klotzle et al., 2019), crypto-currency market (Kaiser and Stockl, 2019; Ballis and Drakos, 2019). While some authors didn’t found the existence of herd behaviour among investors in the stock market (Kanojia, Singh & Goswami, 2020; Mertzanis and Allam, 2018; Demirer and Kutan, 2006), commodities market (Babalos et al., 2015).

Bibliometric analysis allows to evaluate the impact of scientific researches, citations and publications, and provides direct reference to new research trends (Moreno and Rosselli, 2012). In the past few years, bibliometric analysis along with systematic literature review have supported many researchers to explore new research trends over the years within a specific area of research and to detect future research trends in the areas such as international business (Rialp et al., 2019), industrial marketing (Valenzuela-Fernandez et al., 2019), business models (Coombes and Nicholson, 2013), entrepreneurship (Lopez-Fernandez et al., 2016), economics (Bonilla et al., 2015) and political economy (Amiguet et al., 2017).

3. Research Methodology

The comprehensive literatures about Herd Behaviour published between 1983 and 2022 have been scanned in the Dimensions database. The searched terms applied to identify the nearest matching
publications consists “herd behaviour”, “herd behaviour in stock market”, “herding behaviour in stock market”, “herd behaviour in commodities market”, “herding behaviour in commodities market”, “herd behaviour in crypto market”, “herding behaviour in crypto market”, “herd behaviour in mutual fund”, “herding behaviour in mutual fund”, “herd behaviour in finance”, “herding behaviour in finance”, “intraday herding behaviour”, “herd behaviour in investment”, “herding behaviour in investment” and “cross sectional absolute dispersion herding behaviour” which were used as the keywords in the title and abstract.

The information for the documents that meet the requirements included year of publication, journal, title, source, author, affiliation, organization, country, abstract and counts of citation that were exported in CSV format. The date of data retrieval was 05th August, 2022. VOSviewer (version 1.6.18) was employed to analyse the Co-authorship, Co-occurrence, Citation and themes.

4. Data Analysis

4.1. Bibliographic Analysis of Publications

Overall, 2996 publications on the topic of Herd behaviour were identified in Dimensions database between 1983 and 2022 which included 1320 duplicate publications and 237 publications were removed which were related to live stock herd behaviour and not relevant to the current concerned bibliometric analysis based on herd behaviour in financial markets, businesses and corporates. High weightage of publication were found of keyword “herd behaviour in the stock market” on dimensions database

![Figure 1: Documents Screening Flow Diagram](image-url)
which is 994 (69%) out of 1439 publications. So it can be concluded that herd behaviour is more stock market phenomenon that is executed by the investors.

4.2. Publications Output Year-wise

The filtered 1439 documents related to herd behaviour in finance extracted from Dimensions database and included in bibliometric analysis cover the period from 1957 to 2022. The quantity of publications before 1999 was low which resulted in inclusion of years with their number of publications from 2000 to 2022 in the graph. From 1999, the number of publications started growing. Following bar graph presented below describes the number of publications over the previous 22 years.

![Year-Wise number of Publications](image)

From the figure 2, it can easily be observed that maximum numbers of publications were found in the years 2020 and 2021 having 153 and 149 papers or articles published respectively. The pandemic becoming the obvious reason for such a high quantity of publications in these two years as most of the publications on herd behaviour based on COVID-19, pandemic, etc. were seen in these year. As it can be observed that after 2010, the number of publications spurted from the year 2011 consisting 68 number of publications. However, the quantity of papers found low in 2022 with only 93 publications but it can be said that the year is not completed yet which means the process of publishing is in running phase for the year 2022.

4.3. Keywords

The size of a node denotes the frequency of occurrence and the curve between the nodes indicates the co-occurrence of nodes within the same publication. Lesser the distance between nodes, the larger will be the quantity of their co-occurrence.

As the records in Dimensions database does not contain information of keywords so most frequent words occurred more than 10 times in the published papers have been enrolled in the final analysis.
from the field titles and abstracts. Of the 24,483 most occurred words, 696 met the threshold. In the top 200 most frequent words the keywords appeared most were “investment decision” in blue from cluster 3 (total link strength 503) followed by “Herding behaviour” in red from cluster 1 (total link strength 373) and “market condition” also in red from cluster 1 (total link strength 344).

Figure 3: Bibliometric Analysis of Co-occurrence of the Keywords

Figure 4: An Overlay Visualization of Keywords

Indicator shows the current keywords for a period of 22 years from 2000 to 2022 from purple to yellow. It can be seen that few researches were conducted during initial years of 2000 decade. Keywords relevant to the concerned topic have gained its importance since 2011 as more researches have been conducted from this year. Economic theory, Asian crisis, financial analyst were some keywords that were used frequently before 2010 and during initial years after 2010, commodity, forecast, information cascade, volatility clustering, positive feedback trading were some keywords that were prominently used by researchers in their study. However, the studies on herding behaviour, market condition,
investment decision, equity market, market return, market volatility, trading volume were mostly conducted between the years 2015 and 2018. So it can be claimed that the term herding behaviour found its relevance as an important research area since 2015. When it comes to most recent keywords used during recent years in the latest publications on herd behaviour were crypto-currency market, COVID, pandemic, bitcoin, financial literacy, mental accounting. These keywords may become new research topics in the field of herd behaviour in finance.

4.4. Bibliometric Analysis of Publications and Citations

Out of 636 journals, 76 met the threshold limit of at least three numbers of documents of a source and at least ten citations per journal.

Figure 5 represents the top 10 most active journals. (A) The journals having most- cited papers in the area of herd behaviour in finance; (B) the overlay visualization of most cited journals in the field of herd behaviour in finance over the years. (C) The journals with highest number of publications

In the Figure 5(A), the most cited journal was Journal of Empirical Finance which has been cited for 1202 times (total link strength 144) followed by Journal of Banking & Finance cited 942 times (total link strength 161). Some other most cited journals were European Financial Management, The
Journal of Finance, American Economic Review. So, it can be interpreted that these journals publish quality research papers which have high relevance in their research field. In Figure 5(B), the overlay visualization of most cited journals over the years has been represented and most recently cited journals which may get heavy number of researches published were found to be Millennial Asia with 25 citation counts (total link strength 59) followed by International Journal of Financial Studies which has 11 citation counts (total link strength 30), Finance Research Letters has 242 citation counts (total link strength 128), Financial Innovation has 39 citation counts (total link strength 26), Review of Behavioural Finance with 123 citation counts (total link strength 212). As it can be observed from figure 5(C) that SSRN Electronic Journal has been the highest publishing journal with 236 number of publications (total link strength 516) followed by Review of Behavioural Finance with 22 publications (total link strength 212).

4.5. Bibliometric Analysis of the Citations

The citation of authors. (A) Out of 2730 authors, 106 met the threshold of at least three documents per author and minimum number of five citations of each author. Eighteen clusters were presented in different colours. Thomas Lux in the purple cluster is the most cited author (1073 times). Ashish Kumar has been found as most recent author with 29 citation counts. (B) The citation of organizations. Out of 868 organizations, 56 met the threshold of least number of documents to be five and at least ten number of citations of each organization. Drexel University being the most cited organization with 1151 citation counts (total link strength 301) and has made its contribution in the concerned research field around the year 2013; (C) The citation of countries. Out of 73 countries, 51 met the threshold of minimum three documents of each country and minimum five citation of each country. United States is the most cited country cited 7244 times (total link strength 2174). The major number of studies in United States found after 2010. An overlay visualization of citation of countries has been provided and it has been found that many researches have been conducted in India during 2018. For future trends in the citation of countries, Nepal is the most recent country with 5 citation count (total link strength 13) Different clusters are indicated by different colours and the counts of citation are represented by the size of circles.

Figure 6 (A): Citation of Authors and an Overlay Visualisation
Table 1: Citation Counts of top 10 Journals, Authors and Countries

<table>
<thead>
<tr>
<th>Journals</th>
<th>Number of Citations</th>
<th>Authors</th>
<th>Number of Citations</th>
<th>Countries</th>
<th>Number of Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal of Empirical Finance</td>
<td>1202</td>
<td>Thomas Lux</td>
<td>1073</td>
<td>United States</td>
<td>7244</td>
</tr>
<tr>
<td>Journal of Banking &amp; Finance</td>
<td>942</td>
<td>Thomas C. Chiang</td>
<td>970</td>
<td>United Kingdom</td>
<td>3160</td>
</tr>
<tr>
<td>SSRN Electronic Journal</td>
<td>858</td>
<td>Ryıza Demirer</td>
<td>619</td>
<td>Germany</td>
<td>1730</td>
</tr>
<tr>
<td>Journal of International Financial Markets, Institutions and Money</td>
<td>817</td>
<td>Simone Alfarano</td>
<td>383</td>
<td>China</td>
<td>1466</td>
</tr>
<tr>
<td>European Financial Management</td>
<td>723</td>
<td>Marco Cipriani</td>
<td>376</td>
<td>France</td>
<td>905</td>
</tr>
<tr>
<td>Pacific-Basin Finance Journal</td>
<td>671</td>
<td>Antonio Gguarino</td>
<td>376</td>
<td>Greece</td>
<td>732</td>
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<tr>
<td>International Review of Financial Analysis</td>
<td>447</td>
<td>Mehmet Balelar</td>
<td>289</td>
<td>Taiwan</td>
<td>625</td>
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<tr>
<td>International Review of Economics &amp; Finance</td>
<td>390</td>
<td>Fotini Economou</td>
<td>274</td>
<td>Australia</td>
<td>568</td>
</tr>
<tr>
<td>Journal of Behavioral Finance</td>
<td>345</td>
<td>Didier Sornette</td>
<td>258</td>
<td>Canada</td>
<td>442</td>
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<tr>
<td>Review of Behavioral Finance</td>
<td>123</td>
<td>Ryıza Demirer</td>
<td>233</td>
<td>India</td>
<td>401</td>
</tr>
</tbody>
</table>

Source: Authors’ Own Compilation

Six hundred and thirty four journals have published articles on herd behaviour of which 37 have published five or more papers with minimum 5 citation counts. It has been observed from table 1 that

Figure 6 (B): Citation of Organizations and an Overlay Visualisation

Figure 6 (C): Citation of Countries and Overlay Visualisation
the publications cited maximum numbers of time are constituents of top three journals namely the Journal of Empirical Finance with 1202 number of citation counts, the Journal of Banking & Finance with 942 and the SSRN Electronic Journal with 858. Among all, the Journal of Empirical Finance has found to be the most cited journal from the data extracted from Dimensions database and analysed on VOSviewer. Out of 2728 authors, 25 met the criteria of minimum 5 citations per author. Among top 10 authors, Thomas Lux emerged as the author who has 1073 maximum number of citation counts. Among authors, 41 met the threshold of minimum 10 citation counts for each country out of 74 countries and found United States to be the country which has been highly cited with 7244 times of citation counts in various articles.

5. Results and Discussion

From the present study, 1447 publications about herd behaviour indexed in Dimensions database were examined. The published articles included the following three facets: Herd behaviour in finance market, market condition and investment decision by investors. As the most frequent term, “Herd behaviour” found to be strongly linked with “stock market” and “investment decision”. United States has made the outstanding contribution within this important area. Herd behaviour in the stock market during pandemic, crypto-currency market may be hotspots in the future.

The global literatures about Herd Behaviour were scanned in the Dimensions database published between 1983 and 2022. Fifteen terms have been used as the keywords in the title and abstract field to identify the nearest matching publication related to herd behaviour in financial sector. The data regarding documents was extracted on 05th August, 2022 in comma separated value format and VOSviewer (version 1.6.18) which is one of the significant software to conduct bibliometric analysis has been employed to analyse the Co-occurrence of keywords, future research trends, Citation, Co-authorship and themes.

Out of 2996 publications on the topic herd behaviour in finance, 1320 documents were found duplicate and 237 publications were removed due to their non-relevance to the concerned topic. A major portion of research articles relate to the herd behaviour in the stock markets (994) out of 1439 publications which is 69% of the total publication selected for analysis.

It has been known that the Dimensions database does not contain the information regarding keywords used by authors in their respective articles as the keywords are available with other databases such as Web of Sciences, Scopus, etc. so most frequent words occurred more than 10 times in the published papers have been analysed from the field titles and abstracts. Of the 24,483 most occurred words, 696 met the threshold and found that “herd behaviour”, “investment decision” and “market condition” were most frequently occurred keywords. It has also been resulted that the crypto-currency market, COVID, pandemic, bitcoin, financial literacy, mental accounting are the most recent keywords that has been occurred in the latest publications. These keywords may turn out to be hot topics for further research trends for instance the outbreak of COVID-19 has impacted the financial sectors also along with the health of the people in recent couple of years so many researches have been identified on COVID-19 since 2020. More emphasis has now been provided on the financial literacy of investors because one of the reasons could be investors not containing appropriate knowledge of share prices
and respective company activities and decisions leads them to follow the crowd which affects the market severely. Mental accounting is a new concept which needs more enhancement and exposure in the research field.

On performing bibliometric analysis on citations and publications of journals, authors, organisations and countries, it has been found that the Journal of Empirical Finance which has been cited for 1202 times was most cited journal. Millennial Asia followed by International Journal of Financial Studies, Finance Research Letters were some journals which include the journals cited the most in recent years. SSRN Electronic Journal has been the highest publishing journal with 236 number of publications followed by Review of Behavioural Finance which includes 22 publications. Thomas Lux has resulted to be the most cited author with 1073 citation counts and the most recent author cited is Ashish Kumar with 29 citation counts. Drexel University is the most cited organization and United States has resulted to be the most cited country. Nepal is being seen as the emerging country which is being cited. Year-wise number of publications have been observed and found that the maximum numbers of articles on herd behaviour in finance have been published during the years 2020 and 2021 which are majorly based on the pandemic that affected the global markets.

6. Conclusion

During recent years since 2016, growing number of academic papers have been published. Hence, it becomes imperative to evaluate the significance and eminence of such a increased number of research articles and extract significant information with some impactful output. Research in behavioural finance plays a significant role in understanding the concept of herd behaviour thoroughly. Since the concept of herd behaviour is not very new, still most of the investors tend to imitate the investment decision of others and do not follow their own consensus and available information. This may be the reason that most of the recent studies are concentrated on financial literacy so that investors get the knowledge of market behaviour and become able to take their investment decision by themselves. Mental accounting, crypto-currency markets are still future research directions. The numbers of publication in 2022 are lesser as compared to 2020 and 2021 being the fact that some more research articles on the topic can be published during the remaining months of 2022 and some more exposure must be provided in the new research trends on the topic so that the number of publications grows in increasing trend.

References


