

Behavioural finance in emerging markets: A bibliometric analysis

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ABSTRACT

This investigation analyses the academic research development over the last 30 years on behavioural finance in the emerging markets. We use Web of Science database to collect the bibliographic material and a VOS Viewer software to identify similarities by using bibliometric techniques. The results show a significant growth of research in this area, especially after the subprime crisis and highlights the emergence of sub areas of interest to researchers which have arisen in a natural fashion and without a previously defined orientation. There is still no consensus in the literature regarding the causes of this phenomenon and new questions emerge to expand research on herd behaviour in the emerging markets.

KEYWORDS

financial behaviour, financial markets, emerging markets, Web of Science

JEL CLASSIFICATIONS INDICES

G15, G14

1. INTRODUCTION

Prior to 1960, the financial literature was focused on traditional financial theory that assumed the performance of well-informed, careful investors who were not guided by their emotions.

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Under this representation, individuals and companies are independent agents trying to maximize their profits as best as they can in the face of resource constraints. Thus, the value of an asset is determined in a market subject to the influences of supply and demand (Ackert – Richard 2009) with which, under the traditional approach, it is assumed that the prices of securities adjust rapidly upon arrival of new information in an efficient capital market and that current prices reflect all information about the value. In this context, the expected utility theory emerges which was formally developed by Neumann – Morgenstern (1944) to define rational behaviour when people face uncertainty. During the 1960s and 1970s, neoclassical finance emerged, where the financial asset valuation model (CAPM), the efficient market hypothesis (EMH), and option pricing theory based on arbitrage were the most popular topics. New perspectives emerged in the early 1980s following the introduction of the “behavioural school” of finance. In this decade academic discussions arose on the consistency of the efficient markets model. In this context, the theories of Kahneman – Tversky (2013) are incorporated, specifically the prospective theory or theory of perspectives. This theory is positive (or descriptive) because it is based on how people actually behave. In it, the value function replaces the idea of profit. That is, profit is generally measured in terms of the level of wealth while value is defined by gains and losses relative to a benchmark. Thus, behaviourists believe that market prices are very imprecise and that an overreaction in the market is the rule rather than the exception. In this sense, some of the factors that create irrational market behaviour are overconfidence, biased judgments, herd mentality and loss aversion (Malkiel 2007).

Specifically, behavioural finance is an area of finance that studies how psychology, specifically the conduct and behaviour of investors, affect financial decision making. At a general level, research on behavioural finance covers different phenomena and study focuses, such as investor sentiment, disposition effect, excess confidence and expected return on stocks, arbitrage, bias and models, public offer for sale, mutual funds, strategies, attention and portfolio selection (Paule-Vianez et al. 2020). However, to date no research has been conducted to report on the evolution of this area in the emerging economies.

There is no doubt, on the one hand, about the importance of emerging economies in trade and the world economy, such as China, which is currently the second largest economy globally by volume of GDP and the first exporter of merchandise in the world, along with the United States and Germany (World Trade Organization). Despite this, China is still categorized as emerging based on its GDP per capita. Something similar happens with the emerging countries classified as BRICS (Brazil, Russia, India, China and South Africa). On the other hand, the emerging markets are considered more attractive because they tend to grow faster, which attracts the attention of investors. Indeed, since the financial crisis of 2007–2008, economic growth has lost dynamism in Europe and the United States, which has led investors to take an interest in the new economies on the rise, such as the emerging ones.

Our investigation is among the firsts to make a bibliometric analysis of our subject. Specifically, this study presents a systematic review of 191 influential publications among 777 articles found on the Web of Science (WoS) website. The main research fields in the area were identified, complementing the results with those obtained with the VOS Viewer software. Four main clusters or different research fields were identified:

1. Herd behaviour,
2. Biases, sentiment and behaviour,



3. Information and volatility, and
4. Crisis and bubble.

In addition, the study provides information on the main authors, journals, institutions, countries, years and research topics of the publications. The emerging economies with the highest literary production are China, Turkey, Taiwan and India. The greatest advance was found in the area of biases and behaviour, such as the willingness effect and overconfidence, while the least powerful topic is the study of herd behaviour, followed by financial bubbles, therefore it is advisable to continue delving into these last two topics.

The rest of the article is organized as follows. Section 2 describes the methodological design. Section 3 presents the results, Section 4 presents the conclusions of the article.

2. METHODOLOGY

Bibliometric analysis is an outstanding research tool that can systematically represent the nature of specific scientific disciplines by highlighting critical research points and detecting research trends. Although bibliometric methods are not new, they began to attract attention due to the proliferation of easily accessible databases such as the WoS platform, which is considered one of the main sources of bibliographic information.¹ Bibliometric methods employ a quantitative approach for the description, evaluation and monitoring of the published research. Under this methodology, a series of articles have emerged in recent decades in the area of finance and various studies have emerged in areas such as financial crises (Chang – Ho 2010), business portfolio restructuring (Sanchez-Riofrio et al. 2015), behavioural finance and decision making with cognitive biases (Costa et al. 2017), finance and behavioural economics (Costa et al. 2019), green finance (Zhang et al. 2019), among others.

Specifically, we use the procedure proposed by Volery – Mazzarol (2015) and Mura et al. (2018). The process consisted of four steps. First, an exploratory review of the published articles related to the term “Behavioural finance” and “emerging markets” was carried out with the aim of having an updated overview of the subject under study, creating a list of keywords and completing a set of terms. This general analysis allowed us to carry out the final query more accurately as follows: $TS = ((\text{Behav} * \text{financ} *) \text{ AND } (\text{emerg} * \text{market} * \text{ OR } \text{emerg} * \text{econom} * \text{ OR } \text{emerg} * \text{countr} *))$, from which 1,255 documents were obtained. This search was filtered by type of document, article and categories, from which “economics”, “business finance”, “business”, “management”, “mathematics interdisciplinary applications” and “social sciences mathematical methods” were chosen to include only documents that have passed a double-blind peer review process. Thus, our initial set of articles from the WoS, which was obtained on June 27, 2020, consisted of 777 articles.

The second step was to debug the initial sample. On the one hand, 147 articles were identified that did not have keywords or had different descriptive keywords but that had the same meaning. Thus, it was necessary to designate keywords for the subsequent article from its

¹Web of Science (WoS) includes more than 78 million documents, 21,349 journals, books and proceedings. Although WoS has an index of scientific citations of social sciences, arts and humanities, proceedings, books and emerging sources, which add up to a total of 1.6 billion references cited, in this study the documents available in the area were used of the social sciences.



reading and analysis. In turn, keywords that have the same meaning were standardized in one, such as the terms “behavioural finance”, “financial behaviour”, “Behaviour Finance”, “behavioural finance”, “financial behaviour” or “emerging market”, “Emerging markets”, “emerging countries” and “emerging country”.

The third step took the most time and consisted of reviewing each article and checking that the central theme of the paper was around “Behavioural finance” in “Emerging markets”. In this stage, 586 articles were eliminated. Much of the articles removed came from other research areas and had no direct relationship to behavioural finance in the emerging markets. Specifically, the following total of articles were eliminated: 31 articles about monetary policy, 55 about policies, laws and regulations, 28 about marketing, 30 about entrepreneurship, 32 about management, 28 about customer behaviour and decision, 39 about industry behaviour, management and performance, 34 about strategies at the company level, 23 about macroeconomic variables, 19 about social responsibility, 16 about innovation, 13 about technology, 16 about government and policies at the country level, 16 about environmental sustainability, 16 about crisis, 14 about structure of property, 14 about risk management, 12 about economy and GDP, 17 about forms of financing, 9 about decision-making at the personal level and 8 about agent models. The remaining 116 articles dealt with various topics that were far from the focus of behavioural finance, some of these are health, supply chain, corruption, human resources, culture, systems, accounting and government, among others. After this analysis and procedure, *we obtained a final sample consisting of 191 articles for the period between 1992 and 2020*. Additionally, for each of these articles we made a proper classification of keywords for each article after reading it. Thus, we generated two sets of 191 articles, one with keywords reported by WoS and the other with the one assigned by us.

The fourth and final step consisted of grouping the articles that were related by subject in clusters using the two classifications described above. We used the VOS viewer visualization software to graphically map the bibliographic results. We employed this software to match keywords that appear most frequently in the same documents.²

We made four clusters. The first corresponds to herd behaviour. This cluster is characterized by containing the keywords “herding”, “herd behaviour” or “herding behaviour”, and studies this behaviour in the stock markets of different countries and financial markets. A second cluster is related to the concept of bias and other behavioural effects. Some keywords are “over-reaction”, “disposition effect”, “foreign bias”, “heuristics”, “behaviour”, “risk aversion”, “emotions”, “home bias”, “loss aversion”, “investor behaviour”, “Culture” and “behavioural biases”. A smaller subgroup was included in this category as they share similar themes. Thus, it additionally includes issues related to sentiment. Some keywords in this context are “sentiments”, “market sentiment”, “prospect theory”, “speculation”, “optimism” and “pessimism”.

A third cluster corresponds to the concepts of information and volatility, and which also include words such as “market volatility”, “stock market volatility”, “news”, “momentum”, “information asymmetry” and “information cascades”. The fourth and last group corresponds to the concept of financial crisis and bubbles. The most common words in this bubble cluster are “financial crisis”, “speculative bubbles”, “contagion”, “bubbles”, “crashes” and “subprime crisis”.³

²Due to lack of space, the results can be requested directly from the authors.

³Due to lack of space, the results can be requested directly from the authors.



3. GENERAL RESULTS

We found articles published on behavioural finance as early as 1995. Since then, the amount of research in the emerging markets has gradually increased. 77.5% of the articles were published in the last 10 years. [Figure 1](#) represents the number of articles distributed by years.

In the last 20 years an average of 9 articles were published per year, while in the last 10 years an average of 14 articles were published per year. In total, 191 articles on behavioural finance and emerging markets were published, which have a total of 2,545 citations with an h-index of 21, that is, at least 21 articles have received 21 citations each. Furthermore, 84% of the articles have been cited at least once, and 51% have been cited at least 5 times. The authors with the largest publications are Ibragimov, Kutan and Muradoglu. The institutions with the highest number of publications are: University of Malaya, Public University of Navarre, University of Milano-Bicocca, Warsaw School of Economics, World Bank, Imperial College London, Southern Illinois University, University of Liverpool and University of Stirling. The countries with the highest number of publications, taking into account the nationalities of all the authors, are the USA, the UK and China. The most productive journals by number of publications are Emerging Markets Review, International Journal of Emerging Markets, Research in International Business and Finance, Emerging Markets Finance and Trade, and Pacific-Basin Finance Journal. In addition, the most cited articles belong to the years 1995, 2000 and 2011. For more detail, [Table 1](#) presents the structure of annual citations, where the number of documents that each year reaches a certain threshold of citations are detailed.

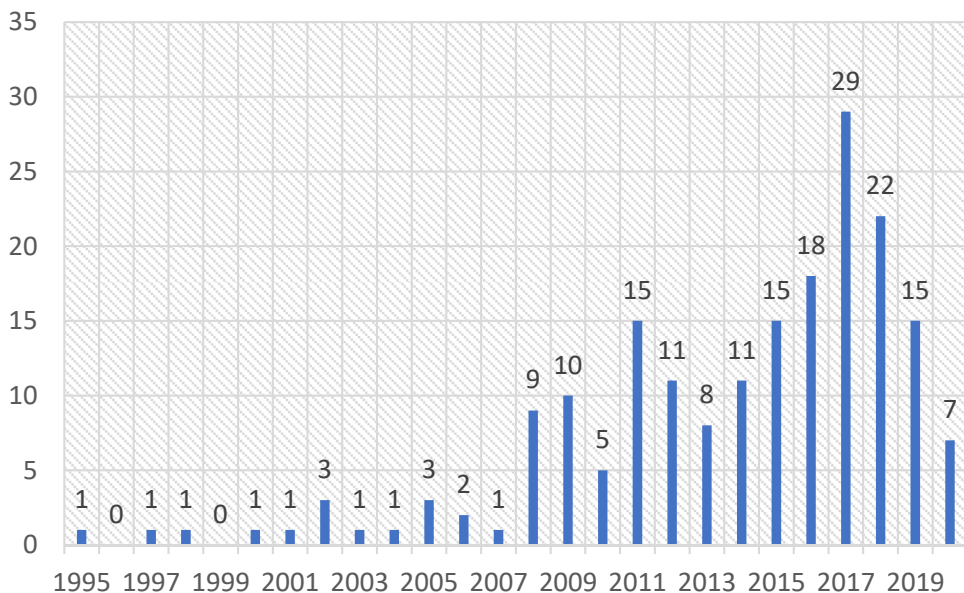


Fig. 1. Distribution of articles by year



Table 1. Structure of citations by number of times according to tranches per year

Year	N° Articles	N° Citations	≥50	≥20	≥10	≥5	≥1	Total	%
1995	1	444	1	0	0	0	0	1	0.6
1996	0	0	0	0	0	0	0	0	0.0
1997	1	11	0	0	1	0	0	1	0.6
1998	1	15	0	0	1	0	0	1	0.6
1999	0	0	0	0	0	0	0	0	0.0
2000	1	303	1	0	0	0	0	1	0.6
2001	1	38	0	1	0	0	0	1	0.6
2002	3	67	0	2	0	0	1	3	1.9
2003	1	72	1	0	0	0	0	1	0.6
2004	1	3	0	0	0	0	1	1	0.6
2005	3	24	0	0	1	1	1	3	1.9
2006	2	27	0	0	2	0	0	2	1.2
2007	1	3	0	0	0	0	1	1	0.6
2008	9	66	0	0	2	6	0	8	5.0
2009	10	185	1	2	1	4	2	10	6.2
2010	5	85	1	0	2	1	1	5	3.1
2011	15	309	2	0	2	3	6	13	8.1
2012	11	187	1	3	0	3	3	10	6.2
2013	8	121	0	2	2	1	2	7	4.3
2014	11	140	1	1	1	2	6	11	6.8
2015	15	102	0	0	5	3	7	15	9.3
2016	18	135	0	2	3	6	3	14	8.7
2017	29	140	0	0	2	15	11	28	17.4
2018	22	54	0	0	0	6	9	15	9.3
2019	15	12	0	0	0	0	7	7	4.3
2020	7	2	0	0	0	0	2	2	1.2
Total	191	2,545	9	13	25	51	63	161	100

The most cited articles are “An examination of herd behaviour in equity markets: An international perspective” ([Chang et al. 2000](#)). This work studied herd behaviour in different international markets, finding evidence for the emerging markets of South Korea and Taiwan significant of this behaviour. On the other hand, the article by [Lux \(1995\)](#) “Herd behaviour, bubbles and crashes” is highly cited by other researches that have studied these markets. [Table 2](#)



Table 2. The 50 most cited articles of our sample

N°	Title	Authors	Year of publication	Total of citations	Annual average
1	Herd behaviour, bubbles, and crashes	Lux	1995	444	17.76
2	An examination of herd behaviour in equity markets: An international perspective	Chang et al.	2000	303	15.15
3	Dating the timeline of financial bubbles during the subprime crisis	Phillips – Yu	2011	186	20.67
4	Local effects of foreign ownership in an emerging financial market: Evidence from qualified foreign institutional investors in Taiwan	Huang – Shiu	2009	77	7.00
5	Stock market cycles, financial liberalization and volatility	Edwards et al.	2003	72	4.24
6	Surges	Ghosh et al.	2014	69	11.50
7	Emerging markets research: Trends, issues and future directions	Kearney	2012	66	8.25
8	Corporate social responsibility, investor behaviours, and stock market returns: evidence from a natural experiment in China	Wang et al.	2011	60	6.67
9	The degree of financial liberalization and aggregated stock-return volatility in emerging markets	Umutlu et al.	2010	50	5.00
10	On the international transmission of shocks: Micro-evidence from mutual fund portfolios	Raddatz – Schmulder	2012	47	5.88
11	Herding behaviour in REITs: Novel tests and the role of financial crisis	Philippas et al.	2013	47	6.71
12	On rational bubbles and fat tails	Lux – Sornette	2002	44	2.44
13	Investing in peace: the motivational dynamics of diaspora investment in post-conflict economies	Nielsen – Riddle	2009	39	3.55

(continued)



Table 2. Continued

N°	Title	Authors	Year of publication	Total of citations	Annual average
14	Mutual fund investment in emerging markets: An overview	Kaminsky et al.	2001	38	2.00
15	Overreaction in capital flows to emerging markets: Booms and sudden stops	Agosin – Huaita	2012	29	3.63
16	Do mutual fund managers exploit the Ramadan anomaly? Evidence from Turkey	Bialkowski et al.	2013	28	4.00
17	Multifractality and herding behaviour in the Japanese stock market	Cajueiro –Tabak	2009	27	2.45
18	Emerging market sovereign bond spreads and shifts in global market sentiment	Csonto	2014	26	4.33
19	Determinants of time varying co-movements among international stock markets during crisis and non-crisis periods	Mobarek et al.	2016	25	6.25
20	Cultural dimensions, ethical sensitivity, and corporate governance	Chan – Cheung	2012	23	2.88
21	Emerging trends in Asia-Pacific finance research: A review of recent influential publications and a research agenda	Linnenluecke et al.	2016	21	5.25
22	Resistance is futile: the assimilation of behavioural finance	Frankfurter – McGoun	2002	20	1.11
23	Disposition effects and underlying mechanism in e-trading of stocks	Lee et al.	2008	19	1.58
24	Deconstructing herding: evidence from pension fund investment behaviour	Raddatz – Schmukler	2013	18	2.57
25	Evidence of herding and positive feedback trading for mutual funds in emerging Asian countries	Hsieh et al.	2011	17	1.89

(continued)



Table 2. Continued

N°	Title	Authors	Year of publication	Total of citations	Annual average
26	Emerging markets and heavy tails	Ibragimov et al.	2013	17	2.43
27	Market maturity and mispricing	Jacobs	2016	16	4.00
28	Why are currency crises contagious? A comparison of the Latin American crisis of 1994–1995 and the Asian crisis of 1997–1998	Fratzscher	1998	15	0.68
29	Intelligent finance – An emerging direction	Pan et al.	2006	15	1.07
30	Pecking order behaviour in emerging markets	Seifert – Gonenc	2010	15	1.50
31	The impact of news, oil prices, and global market developments on Russian financial markets	Hayo – Kutan.	2005	14	0.93
32	An analysis of involuntary excess reserves, monetary policy and risk-taking behaviour of Chinese banks	Nguyen – Boateng	2015	14	2.80
33	On the volatility transmission between oil and stock markets: a comparison of emerging importers and exporters	Bouri – Demirer	2016	14	3.50
34	Commodity-price volatility and macroeconomic spillovers: Evidence from nine emerging markets	Hegerty	2016	14	3.50
35	Financing in an emerging economy: Does financial development or financial structure matter?	Castro et al.	2015	13	2.60
36	Herd behaviour and nonfundamental asset price fluctuations in financial markets	Bischi et al.	2006	12	0.86

(continued)



Table 2. Continued

N°	Title	Authors	Year of publication	Total of citations	Annual average
37	Size effect in January and cultural influences in an emerging stock market: The perspective of behavioural finance	Chen – Chien	2011	12	1.33
38	Do fund managers herd in frontier markets – and why?	Economou et al.	2015	12	2.40
39	Attitudinal factors, financial literacy, and stock market participation	Sivaramakrishnane et al.	2017	12	4.00
40	Complex bubble persistence in closed-end country funds	Ahmed et al.	1997	11	0.48
41	Nonlinearities in emerging stock markets: evidence from Europe's two largest emerging markets	Hasanov – Oma	2008	11	0.92
42	The psychology of investment behaviour: (De)biasing financial decision-making one graph at a time	Duclos	2015	11	2.20
43	Stock markets volatility spillovers during financial crises: A DCC-MGARCH with skewed-t density approach	Bala – Takimoto	2017	11	3.67
44	Building and artificial stock market populated by reinforcement – Learning agents	Rutkauskas – Ramanauskas	2009	10	0.91
45	Fragility of information cascades: an experimental study using elicited beliefs	Ziegelmeyer et al.	2010	10	1.00
46	A behavioural analysis of investor diversification	Fuertes et al.	2012	10	1.67
47	Real and financial interacting markets: A behavioural macro-model	Naimzada – Pireddu	2015	10	2.00

(continued)



Table 2. Continued

N°	Title	Authors	Year of publication	Total of citations	Annual average
48	Behaviour of emerging stock markets in the global financial meltdown: Evidence from BRICA	Aktan et al.	2009	9	0.82
49	Premiums, discounts and feedback trading: Evidence from emerging markets' ETFs	Charteris et al.	2014	9	1.50
50	Ambiguity aversion and illusion of control: experimental evidence in an emerging market	Grou et al.	2008	8	0.67

Note: This table shows the 50 most cited articles from the 191-article database. Their order is presented in the first column, from the most to the least cited. In the last column, the average number of citations that this article has had each year, from its year of publication to 2020, is reported.

shows the 50 most cited articles in the sample, with their respective authors, year of publication and average number of citations per year. The 5 most cited articles represent 31.4% of the total citations. These papers develop topics, such as herd behaviour, financial bubbles, subprime crisis, stock market volatility, and behaviour of institutional investors in the emerging markets.

Table 3 shows the most productive countries according to the number of articles published. 82 articles are assigned more than one nationality because the research carried out jointly by authors from different institutions and countries.⁴ In detail, there are 490 authors, where on average each article has 2.6 authors. In turn, a total of 60 countries were involved. The countries with the highest number of published articles are the USA, the UK and China.

⁴Some articles that show the collaborations between authors from different countries are “*Abnormal trading volume and autoregressive behaviour in weekly stock returns in the Saudi stock market*” (Alsubaie – Najand 2009) from institutions in Saudi Arabia and the United States, respectively. The authors examined the relationship between the abnormal change in trading volume of individual stocks and portfolios and the short-term autoregressive price behaviour in the Saudi stock market. “*Contagion through national and regional exposures to foreign banks during the global financial crisis*” by Park – Shin (2020), authors who belong to institutions in the Philippines and South Korea, studied the contagion effect at the country level during the 2008 global financial crisis, finding that the emerging market economies most exposed to banks in the affected countries suffered more capital outflows during the global financial crisis. In the same line, the work *Stock markets volatility spillovers during financial crises: “A DCC-MGARCH with skewed-t density approach”* (Bala – Takimoto 2017) from Nigeria and Japan, who investigate volatility spillovers from equity returns in the emerging and developed markets using multivariate GARCH models and their variants; “*Foreign portfolio flows and emerging stock market: Is the midnight bell ringing in India?*” (Hiremath – Kattuman 2017) belonging to the institutions in India and England respectively, who studied the behaviour of foreign portfolio flows and the interaction between flows and returns from India.



Table 3. Most productive countries according to number of publications

N°	Countries	Total of articles	Total of authors	N°	Countries	Total of articles	Total of authors
1	USA	43	68	21	South Africa	4	6
2	UK	23	34	22	Switzerland	3	4
3	China	16	35	23	Greece	3	7
4	Germany	13	21	24	Pakistan	3	6
5	Italy	11	24	25	Romania	3	7
6	Turkey	11	25	26	Russia	3	7
7	Taiwan	9	22	27	Sweden	3	5
8	France	8	15	28	Saudi Arabia	2	2
9	India	8	17	29	United Arab Emirates	2	4
10	Australia	7	12	30	Philippines	2	4
11	Brazil	7	19	31	Israel	2	4
12	South Korea	7	12	32	Lebanon	2	2
13	Scotland	7	9	33	Lithuania	2	4
14	Spain	6	11	34	Luxembourg	2	2
15	Netherlands	6	6	35	Serbia	2	8
16	Canada	5	6	36	Singapore	2	3
17	New Zealand	5	9	37	Tunisia	2	3
18	Malaysia	5	10	38	Vietnam	2	3
19	Chile	4	6	39	Portugal	2	4
20	Poland	4	9	40	Hungary	2	4

Note: The table lists the 40 most productive countries based on total items in descending order. For the total column of articles, all the nationalities of the authors were considered, so that the same article can be assigned to one or more countries. The total authors' column quantifies the country from which each author comes.

On the other hand, there are 33 journals that have more than one published article (Table 4), with *Emerging markets review* standing out with 11 articles, *International Journal of Emerging Markets* with 10 articles, *Research in International Business and Finance* with 8 articles, *Emerging Markets Finance and Trade* with 8 articles and *Pacific-Basin Finance Journal* with 7 articles. Specifically, *Emerging Market Review* is characterized by publishing high-impact theoretical and empirical studies for the emerging market finance. *International Journal of Emerging Markets* publishes high-quality multidisciplinary research focused on business in



Table 4. Most productive journals according to the number of the publications

	Name of the journals	Total number of the articles
1	Emerging Markets Review	11
2	International Journal of Emerging Markets	10
3	Research in International Business and Finance	8
4	Emerging Markets Finance and Trade	8
5	Pacific-Basin Finance Journal	7
6	European Journal of Finance	6
7	International Review of Financial Analysis	5
8	Journal of International Money and Finance	4
9	Applied Economics	4
10	Journal of Business Ethics	4
11	Asia-Pacific Journal of Financial Studies	4
12	Quantitative Finance	4
13	African Journal of Business Management	3
14	Applied Economics Letters	3
15	Finance Research Letters	3
16	Economic Research-Ekonomiska Istraživanja	3
17	Chaos Solitons and Fractals	3
18	Journal of Banking and Finance	3
19	Journal of Behavioural Finance	3
20	Transformations in Business and Economics	3
21	Journal of Financial Stability	3
22	Journal of Economic Behaviour and Organization	2
23	Economics-The Open Access Open-Assessment e-Journal	2
24	Management Science	2
25	International Journal of Islamic and Middle Eastern Finance and Management	2
26	Economic Modelling	2
27	Computational Economics	2

(continued)

Table 4. Continued

	Name of the journals	Total number of the articles
28	Economic Computation and Economic Cybernetics Studies and Research	2
29	Journal of Empirical Finance	2
30	Journal of International Economics	2
31	International Journal of Bank Marketing	2
32	Journal of Economic Interaction and Coordination	2
33	North American Journal of Economics and Finance	2

Note: This table represents all those journals with more than one publication. The first column shows the ranking of the journal from the most productive to the least.

the emerging markets. *Research in International Business and Finance (RIBAF)* publishes high-quality articles that explore new and current topics in international finance. *Emerging Markets Finance and Trade* covers fields of economics, finance, business and international relations, related to the emerging markets, and *Pacific-Basin Finance Journal* focuses on the publication of academic research on the capital markets of Asia-Pacific countries, excluding articles that exclusively use USA data.

Regarding the productivity of universities or other institutions, Table 5 shows the 44 most productive institutions according to the total number of publications, those that have only one publication were not included among the main ones. These 44 institutions represent 26.8% of the total institutions under study. In total, 317 institutions belonging to 60 different countries were found. The most productive universities or institutions, considering that more than one institution can be attributed to an article, are University of Malaya, Malaysia,⁵ Public University of Navarra, Spain, University of Milano-Bicocca, Italy, Warsaw School of Economics, Poland, the World Bank, Imperial College London, England, Southern Illinois University, United States, University of Liverpool, England and University of Stirling, Scotland.

⁵Some outstanding research is that of Qureshi et al. (2017), from the University of Malaya (Malaysia), who investigated the empirical relationship between aggregate mutual fund flows and equity market volatility in the Asian emerging markets. Harrison et al. (2018) focus on the ‘angel’ investors in Malaysia, finding that these ‘business angels’ generate strong returns, but it is challenging for them to invest and monitor new ventures in a highly uncertain and competitive environment where there is high political uncertainty, weak legal and financial support for investors and SMEs, therefore they develop informal institutions in order to overcome weak institutional support. Aftab et al. (2015) suggest that the exchange rate and the share price are negatively related after studying the liberal monetary regime in China, and this behaviour increases in the period of financial crisis. The value of this research is that it uses data at the level of listed companies during 2005–2012, in order to present a general perspective of the market and the behaviour of investors.



Table 5. The most productive universities according to total publications

10	University	T.P.	T.A.	Country	N°	University	T.P.	T.A.	Country
1	University of Malaya	3	7	Malaysia	24	Cankaya University	2	2	Turkey
2	Public University of Navarra	3	4	Spain	25	Catholic University of Brasília	2	2	Brazil
3	University of Milano-Bicocca	3	4	Italy	26	Center for Economic and Policy Research	2	2	USA
4	Warsaw School of Economics	3	4	Poland	27	Central Bank of Brazil	2	2	Brazil
5	World Bank	3	4	Mundial	28	Kadir Has University	2	2	Turkey
6	Imperial College London	3	3	England	29	Korea University	2	2	South Korea
7	Southern Illinois University	3	3	USA	30	Natl Cheng Kung University	2	2	Taiwan
8	University of Liverpool	3	3	England	31	Old Dominion University	2	2	USA
9	University of Stirling	3	3	Scotland	32	Queen Mary University of London	2	2	England
10	Massey University	2	5	New Zealand	33	Sun Yat-sen University	2	2	China
11	Asian Development Bank	2	4	Various	34	The European University Institute	2	2	EU
12	Bilkent University	2	4	Turkey	35	The Hong Kong University of Science and Technology	2	2	China
13	Innopolis University	2	4	Russia	36	University of Amsterdam	2	2	Netherlands
14	University of the Witwatersrand	2	4	South Africa	37	University of Cambridge	2	2	England
15	City University of London	2	3	England	38	University of Durham	2	2	England
16	George Washington University	2	3	USA	39	University of Hong Kong	2	2	China
17	Hong Kong Polytechnic University	2	3	China	40	Linköping University	2	2	Sweden

(continued)



Table 5. Continued

10	University	T.P.	T.A.	Country	N°	University	T.P.	T.A.	Country
18	Indian Institute of Technology Kharagpur	2	3	India	41	Corvinus University of Budapest	2	4	Hungary
19	University of Bamberg	2	3	Germany	42	I Shou University	2	2	Taiwan
20	University of Chile	2	3	Chile	43	Pondicherry University	2	2	India
21	University of Sao Paulo	2	3	Brazil	44	University of Minho	2	2	Portugal
22	University of Urbino	2	3	Italy	45	West University of Timisoara	2	4	Romania
23	Yeditepe University	2	3	Turkey					

Note: All those with greater than or equal to two publications were included, ordering them in descending order. T.P.: Total number of publications or papers, T.A.: Total number of authors belonging to that institution.

Table 6 shows the authors with the most publications. In the analysis, 15 authors were found to have authorship of more than one article. Of these, the authors Ibragimov, Kutan, and Muradoglu stand out, who have three articles each. When analysing the total publications that these authors have in WoS, we find that Ibragimov has 26 publications and 708 citations, Kutan has 149 publications and 1,239 citations, while Muradoglu has 7 publications and 87 total citations.

Table 7 shows the most productive authors with respect to the total number of times they have been cited. In addition, the number of publications that the author has in WoS, the h-index, the average number of citations per element and the articles in which it is cited are specified. According to WoS, the value of h-index is based on a list of publications classified in descending order according to the number of times cited. An index of h means that there are h articles that were cited at least h times. This h-index is based on citations from the main WoS collection of publications listed in the author registry. While the average of citations per item (P.C.E.) is the average of articles in which it is cited of all the elements of the result set. It is the total number of times quoted divided by the number of results in the set. Cited articles (A.C.) is the total number of cited articles based on the main WoS collection. Cited articles include citations to one or more items in the citation report, that is, it includes self-citations.

The most productive authors are Peter C. B. Phillips from Yale University, USA, University of Auckland, New Zealand, and University of Southampton, England, who has been cited 3,144; Thomas Lux with 3,098 citations from University of Kiel, Germany; Marcel Fratzscher from European University Institute, Italy with 2,829 citations; Graciela L. Kaminsky from George Washington University, U.S.A. with 2,628 citations, and Kavitha Ranganathan from T.A. Pai Management Institute, India with 2,256 citations.



Table 6. Authors with the most articles

	Author	N° articles	Titles	Titles
1	Ibragimov, R.	3	Emerging markets and heavy tails	Heavy tails and asymmetry of returns in the Russian stock market
3	Kutan, A.	3	The impact of news, oil prices, and global market developments on Russian financial markets	Mutual funds and stock market volatility: An empirical analysis of Asian emerging markets
4	Muradoglu, G.	3	A behavioural analysis of investor diversification	Determinants of time varying co-movements among international stock markets during crisis and non-crisis periods
5	Agosin, M.	2	Overreaction in capital flows to emerging markets: Booms and sudden stops	Sudden stops of capital flows: Do foreign assets behave differently from foreign liabilities?
2	Lux, T.	2	Herd behaviour, bubbles and crashes	On rational bubbles and fat tails
6	Raddatz, C.	2	On the international transmission of shocks: Micro-evidence from mutual fund portfolios	Deconstructing herding: Evidence from pension fund investment behaviour
7	Economou, F.	2	Herding behaviour in REITs: Novel tests and the role of financial crisis	Do fund managers herd in frontier markets - and why?
9	Tabak, B.	2	Multifractality and herding behaviour in the Japanese stock market	Ambiguity aversion and illusion of control: experimental evidence in an emerging market
10	Seetharam, Y.	2	The long-run performance of secondary equity offerings on the Johannesburg Stock Exchange	A learning-augmented approach to pricing risk in South Africa
11	Gavrilidis, K.	2	Do fund managers herd in frontier markets - and why?	Premiums, discounts and feedback trading: Evidence from emerging markets' ETFs
12	Westerhoff, F.	2	Heterogeneity, spontaneous coordination and extreme events within large-scale and small-scale agent-based financial market models	Symmetry breaking in a bull and bear financial market model
14	Kattuman, P.	2	Emerging markets and heavy tails	Foreign portfolio flows and emerging stock market: Is the midnight bell ringing in India?
15	Kallinterakis, V.	2	Do fund managers herd in frontier markets - and why?	Premiums, discounts and feedback trading: Evidence from emerging markets' ETFs



Table 7. Most productive authors according to the total number of times cited in WoS

	Author	T.C.	T.P.	Index	P.C.E.	A.C.	Institution	Country
1	Phillips, P.	3,144	124	27	2,535	1,823	Yale University and University of Auckland	USA, New Zealand
2	Lux, T.	3,098	64	23	48.41	2,285	University of Kiel	Germany
3	Fratzscher, M.	2,829	57	28	49.63	2,309	European University Institute	Italy
4	Kaminsky, G.	2,628	19	12	138.82	2,332	George Washington University	USA
5	Ranganathan, K.	2,256	16	7	141	2,168	T.A. Pai Management Institute	India
6	Gallegati, M.	2,213	91	23	24.32	1,491	University of Ancona	Italy
7	Lyons, R.	1,864	31	20	60.13	1,244	Univ Calif Berkeley	USA
8	Yu, J.	1,852	47	18	39.4	1,195	Singapore Management University	Singapore
9	Schmukler, S.	1,753	39	22	44.95	1,558	World Bank	USA
10	Kirchler, M.	1,619	43	17	37.65	1,274	University of Innsbruck	Austria
11	Sornette, D.	1,591	88	21	18.08	1,189	Swiss Federal Institute of Technology Zurich	Switzerland
12	Tabak, B.	1,560	72	23	21.67	1,177	Central Bank of Brazil	Brazil
13	Bouri, E.	1,508	63	24	23.94	825	Holy Spirit University Kaslik USEK	Lebanon
14	Wei, K.	1,401	31	14	45.19	1,292	Hong Kong Polytech University	China
15	Wyer, R.	1,317	71	23	18.55	1,007	Hong Kong University of Science and Technology	China
16	Sousa, R.	1,294	79	22	16.38	757	University of Minho	Portugal
17	Kutan, A.	1,239	149	19	8.32	1,100	Southern Illinois University, Jiangxi University Finance and Economics	USA, China
18	Khorana, A.	1,187	17	14	69.82	1,062	Chinese University of Hong Kong	China
19	Linnenluecke, M.	1,146	34	18	33.71	894	University of Queensland	Australia
20	Chang, E.	1,056	40	14	26.4	996	Georgia Institute of Technology	USA

(continued)

Table 7. Continued

	Author	T.C.	T.P.	Index	P.C.E.	A.C.	Institution	Country
21	Uddin, G.	1,007	48	18	20.98	868	Linköping University	Sweden
22	de Gracia, F.	978	39	16	25.08	873	University of Navarra	Spain
23	Bekiros, S.	928	71	17	13.07	780	European University Institute	Italy
24	Rosser, J.	913	50	13	18.26	801	Technological Institute and Higher Studies of Monterrey	Spain
25	Miljkovic, V.	910	23	11	39.57	801	University of Belgrade	Serbia
26	Schmukler, S.	893	26	16	34.35	790	World Bank	USA
27	Brockman, P.	869	30	14	28.97	821	University of Adelaide, Lehigh University	USA
28	Cajueiro, D.	852	31	16	27.48	697	University Católica Brazilia	Brazil
29	Smith, T.	839	36	17	23.31	674	University of Queensland	Australia
30	Raddatz, C.	780	19	13	41.05	723	Banco Central de Chile	Chile
31	Westerhoff, F.	779	56	17	13.91	497	University of Bamberg	Germany
32	Hanousek, J.	737	55	13	13.4	601	Charles University	Czech Republic, England
33	Ibragimov, R.	708	26	13	27.23	568	Innopolis University	Russia
34	Park, D.	637	81	12	7.86	592	Asian Development Bank	Philippines
35	Lee, M.	602	8	6	75.25	584	NYU Stern School of Business	USA
36	Cheng, J.	567	9	7	63	560	University of Hong Kong	China
37	Hudson, R.	562	54	13	10.41	493	University of Hull	England
38	McMillan, D.	559	61	11	9.16	512	University of Stirling	Scotland
39	Demirer, R.	558	42	14	13.29	450	Southern Illinois University	USA
40	Chen, X.	539	34	10	15.85	492	RMIT University	Australia
41	Fuertes	534	33	15	16.18	462	City University London	England
42	Lee, H.	533	37	10	14.41	513	Samsung	South Korea
43	Chang, C.	533	27	12	19.74	488	Ming Chuan University	Taiwan
44	Kovacs, E.	516	32	12	16.13	409	Corvinus University Budapest	Hungary
45	Boateng, A.	501	31	11	16.16	456	Glasgow Caledonian University	Scotland
46	Chen, C.	499	27	9	18.48	450	Tennessee State University	USA

(continued)



Table 7. Continued

	Author	T.C.	T.P.	Index	P.C.E.	A.C.	Institution	Country
47	Edwards, S.	484	17	8	28.47	469	National Bureau of Economic Research	USA
48	Qureshi, M.	479	19	10	25.21	423	University of Malaya and University of Sindh	Malaysia, Pakistan
49	Vasudevan, G.	473	17	8	27.82	450	University of Massachusetts	USA
50	Ghosh. A.	465	18	10	22.29	409	International Monetary Fund	USA

Note: This table presents the most productive authors according to the total number of times cited in WoS. The first column lists the authors in descending order, according to the total number of times cited. In the third column the total number of times cited (TC) is reported, in the fourth column the total number of publications that the author has in WoS (TP), in the fifth column the author's h-index value, in the sixth column the average number of citations per item (P.C.E.) and in the seventh column the number of articles cited (AC). The last two columns report the university or institution to which the author belongs, according to the publications in the database, and his/her country, depending on the institution.

4. CONCLUSIONS

Our study performed the first detailed bibliometric analysis on behavioural finance in the emerging economies. 191 articles published from 1995 to 2020 were included. The results identified four main clusters, these different lines of research were: (1) herd behaviour, (2) biases, sentiment and behaviour, (3) information and volatility, and (4) crises and bubbles. The results show that research on behaviour finance in the emerging economies has some similarities, but at the same time interesting differences, with respect to that carried out globally. On the one hand, globally, the journals with most publications are the *Journal of Banking and Finance*, *Journal of Behavioural Finance* and *Journal of Financial Economics*; while in the emerging markets they are *Emerging Markets Review*, *International Journal of Emerging Markets*, and *Research in International Business and Finance*. In turn, the most cited articles on behavioural finance at a global level are those related to market efficiency, while in the emerging markets they are related to herd behaviour and financial bubbles. In turn, the most common themes in the bibliometric analysis of behavioural finance at a global level are investor sentiment, disposition effect, expected returns on shares, model and excess confidence, with a total of 71.6% of the articles, while, in the emerging markets, *bias*, *sentiment and behaviour* were found as the most common themes, represented by 38.7% of the articles, followed by crisis and financial bubble (27.7%). This shows that research topics on behavioural finance in the emerging economies are more related to the characteristics of these markets (herding, information asymmetries, bubbles, etc.), with which more global journals with greater impact are not the main depositories of these articles. This is clearly evident when verifying that of the Top 20 Business-Finance journals only two have any publication on behavioural finance in the emerging economies. This may imply an implicit selection of objective journals by researchers at the time of submitting their papers.

On the other hand, 43% of the articles in the sample were attributed more than one nationality, with an average of 2.6 authors per article, showing that there is a high collaboration of institutions



from different countries, whether developed or emerging. In addition, when considering the FTSE⁶ equity country classification, which classifies equity markets as developed, advanced emerging, secondary emerging, and frontier, we identified 22 countries as developed, 10 as advanced emerging, 10 as secondary emerging, 9 frontiers, and 9 that they are not within the classification. Publications from advanced emerging markets represent 16% of the articles in the sample, these countries are Turkey, Taiwan, Brazil, Malaysia, South Africa, Greece, Hungary, the Czech Republic, Mexico and Thailand. The secondary emerging countries 16%, with the countries China, India, Chile, Pakistan, Romania, Russia, Saudi Arabia, the United Arab Emirates, the Philippines and Egypt. While the border markets by 4.8%, with Lithuania, Serbia, Tunisia, Vietnam, Croatia, Bulgaria, Nigeria, Peru and Ghana. On the other hand, the BRICS countries represent 14%, while if we consider all the markets classified as emerging and developing by the International Monetary Fund, we find that they represent 40.7% of the sample.

The analysis of the research clusters and of the evolution in the knowledge that we have to date on behavioural finance in the emerging economies shows that researchers from these economies, intentionally or not, have gradually managed to increase the production of knowledge by opening various research focuses within each cluster.

Some limitations of the article correspond to the method used. Although bibliometric techniques are used to obtain quantitative results, the final definition of the main fields of study will be determined by the same researchers in this work, so that biases could arise when filtering publications related to the subject in question. Thus, one of the limitations of using bibliometric indicators is that they only provide information on the quantity of publications, but not on their quality, so these results must be combined with the judgment of experts on the subject. On the other hand, the publication date of the article determines to a large extent the number of times it has been cited, which could lead to articles with a significant impact being left out of the main results but that, being more recent, still have a low diffusion, and, therefore, fewer citations.

It must be considered that the present research considers only those publications available on the WoS platform, so there could be other studies on the subject on other scientific dissemination platforms.

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⁶Financial Times Stock Exchange Group (FTSE) is a British company specializing in index offerings for the global financial markets.



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