



Trends in the Financial Research: A Critical Analysis and Review of the Literature Published during COVID-19 Pandemic

Márcia R.C. Santos¹ 

Rui Dias² 

Paulo Alexandre³ 

Paula Heliodoro⁴ 

Received: November 21, 2021

Accepted: November 27, 2021

Published: April 12, 2022

Keywords:

Financial theory;
Literature;
COVID-19 pandemic



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-Non-Commercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission.

Abstract: *Financial theory encompasses several financial domains, as management, budgeting, or investing. Over time, different topics have been addressed in financial policies in different countries, which were followed by academics. During the COVID-19 pandemic, specific crisis-related issues have been addressed to contribute to the financial dimensions of individuals and companies. In order to map the literature addressing financial issues and to locate the research topics in content and time, this study conducts an automated computer analysis of the bibliometric data addressing financial issues related to the COVID-19 pandemic. The analysis provides empirical evidence of the main research channels and the topics receiving the most attention in 2020.*

1. INTRODUCTION

The COVID-19 pandemic has entailed health, economic and social emergency, making companies to be challenged day after day due to uncertainty in public policies in the jurisdictions they operate. Specific markets were especially affected, like tourism or culture (Aburumman, 2020).

Public, nonprofit and for-profit sectors responded to this crisis in different ways, but specially through financial-related decisions (M. R. C. Santos & Dias, 2021). These included, among others, freezing discretionary spending, delaying capital expenditures and routine maintenance, or tapping on endowment (Maher et al., 2020). Those were responses to the decrease of clients, but also the lack of human resources to maintain regular activity. Nonetheless, human resources expenses and other fixed costs are maintained, creating constraints in cash flow.

Thus, financial indicators of companies may have been drastically affected by this pandemic. Additionally, specific financial information may be required by stakeholders, especially investors who have specific interests in the financial indicators of the firm due to their impact on the capital invested, raising risks similar to other sectors (M. Santos & Laureano, 2021; M. R. C. Santos et al., 2021). Considering these challenges, it is relevant to understand how the academy is contributing to the knowledge on financial-related issues to support companies during the COVID-19 pandemic, as well as similar crises. In this sense, the financial field would benefit from mapping the COVID-19 related research conducted in this field.

¹ ESCE, Instituto Politécnico de Setúbal, Portugal and Information Sciences and Technologies and Architecture Research Center (ISTAR-IUL) at Instituto Universitário de Lisboa (ISCTE-IUL), Portugal

² ESCE, Instituto Politécnico de Setúbal, Portugal and CEFAGE-UE, IIFA, University of Évora, Portugal

³ ESCE, Instituto Politécnico de Setúbal, Portugal and CICE, Polytechnic Institute of Setúbal, Portugal

⁴ ESCE, Instituto Politécnico de Setúbal, Portugal, and CICE, Polytechnic Institute of Setúbal, Portugal

2. LITERATURE REVIEW

The review of literature has been made for decades using manual resources. In fact, systematic reviews were time-consuming and costly. The fact that the number of papers is increasing year after year, makes the current volume of data in science too big for traditional systematic literature review. Recent studies show that computer-assisted techniques can strongly support researchers in conducting reviews of a massive number of papers and provide relevant and validated insights in academic literature (Feng et al., 2018).

This technique was already been applied to the financial field (Pejić Bach et al., 2019). Text mining and machine learning algorithms proved to be useful for studying investor sentiment analysis (Wang, n.d.) or for detecting fraud in financial statements (Singh Yadav & Sora, 2021). Those previous studies provide support for applying this technique in reviewing the literature on financial issues covering COVID-19 pandemic-related issues.

3. METHODOLOGY

In order to analyse literature, the Scopus database was used for collecting bibliometric data of literature published by academics, following similar studies' methodology (M. R. C. Santos et al., 2020). The following research query was applied:

(TITLE-ABS-KEY ("2019-nCoV" OR "COVID-19" OR "Coronavirus Disease 2019" OR "Novel Coronavirus Pneumonia" OR "NCP" OR "2019 novel coronavirus" OR "SARS-CoV-2" OR "2019 Novel Coronavirus Diseases" OR "novel coronavirus" OR "pneumonia" AND TITLE-ABS-KEY ("financial")) AND (LIMIT-TO (PUBYEAR , 2020))).

The search returned 1,922 documents indexed in the referred database, which includes the type of documents listed in Table 1.

Table 1. Absolute frequency of data by document type

Document type	Absolute frequency
Article	1230
Review	198
Note	164
Letter	110
Conference Paper	109
Editorial	71
Short Survey	21
Erratum	7
Conference Review	5
Data Paper	3
Book	2
Book Chapter	2

Source: Own research

The data analysis includes qualitative and quantitative methods. On one hand, bibliometric indicators are analysed through descriptive statistics, and content analysis is applied to analyze the text included in the abstract of the articles. The quantitative analysis focused on the typology of

access to the publications and the number of citations per document (Modak et al., 2020). The patterns of the publications during the first year of the COVID-19 pandemic are unveiled.

The text mining technique will be applied to the terms included in the title of the documents in the dataset. VOSviewer algorithm will be used for this purpose, which will allow not only to group terms into clusters but also visualize the co-word map (Santos & Laureano, 2021; van Eck & Waltman, 2010; Verma & Gustafsson, 2020). The mapping provides the view of the network of the terms most cited in the dataset (i.e., in the document's title) and the strength of the links between those terms (Shah et al., 2019). The co-occurrence of the terms applies to the 60% of most significant terms that occurred more than 10 times in the dataset.

4. RESULTS

The publications addressing financial issues were cited 26,174 times, meaning that on average each study was used as a reference in 14 studies, a significant number in a few months. In the dataset, 553 publications received null citations, which is a significant percentage (28%).

The text mining analysis through VOSviewer revealed that the terms applied in research addressing financial issues are grouped in 7 clusters, as shown in Figure 1.

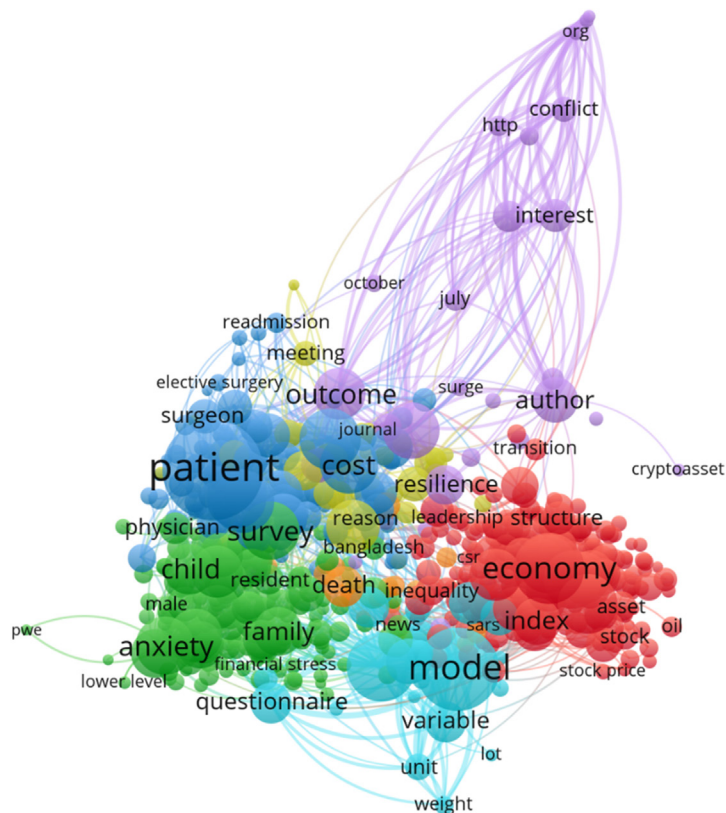


Figure 1. Label view of VOSviewer co-occurrence map

Source: Own research

The data analysis unveils seven clusters within the literature on financial issues: market economy (Cluster 1), health (Cluster 2), treatments (Cluster 3), educational financial burden (Cluster 4), workers resilience (Cluster 5), financial models (cluster 6), and deaths financial (cluster 7). Table 2 lists the most frequent terms in each cluster and each term's number of occurrences.

Table 2. Cluster’s characterization

Cluster	Most frequent terms	Number of occurrences	Cluster	Most frequent terms	Number of occurrences
Cluster #1:	Economy	331	Cluster #5	Work	206
	Market	232		Outcome	177
	Industry	225		Author	138
	Sector	221		Resilience	100
	Company	183		May	84
	China	181		Interest	75
	Index	144		Volume	69
	Bank	138		January	56
	Investment	132		Conflict	44
	Value	128		Document	37
Cluster #2	Survey	228	Cluster #6	Model	447
	Anxiety	226		Factor	319
	Stress	193		Organization	141
	Participant	174		Environment	120
	Child	169		Questionnaire	111
	Depression	162		Variable	110
	Family	160		Safety	109
	Mental health	151		Performance	93
	Respondent	133		Unit	49
	Fear	130		Extent	46
Cluster #3	Patient	653	Cluster #7	Death	109
	Care	266		December	47
	Hospital	254		Doctor	32
	Treatment	231		Accuracy	31
	Cost	228		Bed	31
	Sars Cov	147		Hypothesis	31
	Day	144		Dataset	29
	Procedure	132		Prediction	27
	Reduction	123		Algorithm	26
	Review	119		France	23
Cluster #4	Student	192			
	Facility	102			
	University	79			
	Assessment	73			
	Team	66			
	School	65			
	Member	58			
	Face	54			
	Financial burden	52			
	Learning	52			

Source: Own research

Cluster 1 includes studies market-related in which payments and banking operational are analysed in light of the financial market alterations (Korobeynikova et al., 2020; Nguyen, 2020).

Other authors focus on how financial conditions impacted health. These studies are covered by terms in clusters 2, 3, and 7. In this spectrum, authors evaluated the level of resilience, stress, anxiety and depression as a consequence of different factors, namely families fearing experiencing significant financial burden following the pandemic (Barzilay et al., 2020). In this regard, (Nelson & Kaminsky, 2020) proved that threats to the financial security of families have contributed to the intensification of dark emotional conditions.

The financial burden felt by university students is particularly focused on cluster 4, in which academics contribute to demonstrating implications in mental health and performance of university students, and recommend policies to be implemented by State for providing specific support for this community, namely in Bangladesh (Islam et al., 2020), Taiwan (Shyu et al., 2020) and Malaysia (Sundarassen et al., 2020).

The impact of business outcomes is explored in clusters 5 and 6. The authors focus on niches of organizations, like small businesses (Bartik et al., 2020) or local organizations (Akhter-Khan & Wai, 2020).

5. FUTURE RESEARCH DIRECTIONS

Considering that the COVID-19 pandemic will last for years, this literature review should be complemented by papers published during 2021, as well as the following years. The coverage of the contributions on financial issues will provide practitioners and academics with best practices to face a similar crisis in the future.

6. CONCLUSION

This study provides a map of the literature addressing financial issues during the year 2020. The methodology applied allowed to locate the research topics through automated computer analysis to the bibliometric data addressing financial issues related to the COVID-19 pandemic.

The systematic review conducted to examples of the themes addressed by academy contributes for financial dimensions of individuals and companies, namely highlighting in which studies they practitioners can find best practices. For academics, the results of the present study identify gaps in knowledge that should be addressed in future research.

ACKNOWLEDGMENT

The work by Márcia Santos was financed by FCT - Fundação para a Ciência e Tecnologia, I.P., under the project FCT UIDB/04466/2020 and UIDP/04466/2020. Furthermore, the author thanks the Instituto Politécnico de Setúbal, Instituto Universitário de Lisboa and ISTAR-IUL, for their support.

The work by Rui Dias was financed by FCT - Fundação para a Ciência e Tecnologia, I.P., under the project FCT UIDB/04007/2020. Furthermore, the author thanks the Instituto Politécnico de Setúbal, Universidade de Évora and CEFAGE-UE, IIFA, for their support.

REFERENCES

- Aburumman, A. A. (2020). COVID-19 impact and survival strategy in business tourism market: the example of the UAE MICE industry. *Humanities and Social Sciences Communications*, 7(1), 1–11. <https://doi.org/10.1057/s41599-020-00630-8>
- Akhter-Khan, S. C., & Wai, K. M. (2020). Can COVID-19 Move Myanmar in the Right Direction? Perspectives on Older People, Mental Health, and Local Organizations. *The American Journal of Geriatric Psychiatry*, 28(9). <https://doi.org/10.1016/j.jagp.2020.06.004>

- Bartik, A. W., Bertrand, M., Cullen, Z., Glaeser, E. L., Luca, M., & Stanton, C. (2020). The impact of COVID-19 on small business outcomes and expectations. *Proceedings of the National Academy of Sciences*, *117*(30). <https://doi.org/10.1073/pnas.2006991117>
- Barzilay, R., Moore, T. M., Greenberg, D. M., DiDomenico, G. E., Brown, L. A., White, L. K., Gur, R. C., & Gur, R. E. (2020). Resilience, COVID-19-related stress, anxiety and depression during the pandemic in a large population enriched for healthcare providers. *Translational Psychiatry*, *10*(1). <https://doi.org/10.1038/s41398-020-00982-4>
- Feng, L., Chiam, Y. K., & Lo, S. K. (2018). Text-Mining Techniques and Tools for Systematic Literature Reviews: A Systematic Literature Review. *Proceedings - Asia-Pacific Software Engineering Conference, APSEC, 2017-December*, 41–50. <https://doi.org/10.1109/APSEC.2017.10>
- Islam, Md. A., Barna, S. D., Raihan, H., Khan, Md. N. A., & Hossain, Md. T. (2020). Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: A web-based cross-sectional survey. *PLOS ONE*, *15*(8). <https://doi.org/10.1371/journal.pone.0238162>
- Korobeynikova, O., Burkaltseva, D., Dugina, T., Kozenko, Z., & Shaldokhina, S. (2020). The state of the Russian payment market: digitalization and the impact of COVID-19. *E3S Web of Conferences*, *217*. <https://doi.org/10.1051/e3sconf/202021706003>
- Maher, C. S., Hoang, T., & Hindery, A. (2020). *Fiscal Responses to COVID-19: Evidence from Local Governments and Nonprofits*. *80*(August), 644–650. <https://doi.org/10.1111/puar.13238>
- Modak, N. M., Lobos, V., Merigó, J. M., Gabrys, B., & Lee, J. H. (2020). Forty years of computers & chemical engineering: A bibliometric analysis. *Computers and Chemical Engineering*, *141*, 614–629. <https://doi.org/10.1016/j.compchemeng.2020.106978>
- Nelson, B., & Kaminsky, D. B. (2020). COVID-19's multipronged attack on mental health. *Cancer Cytopathology*, *128*(10). <https://doi.org/10.1002/cncy.22364>
- Nguyen, T. T. (2020, November 27). The impact of COVID 19 on the banking and financial market in Vietnam. *Proceedings of the 2nd Africa-Asia Dialogue Network (AADN) International Conference on Advances in Business Management and Electronic Commerce Research*. <https://doi.org/10.1145/34440094.34440129>
- Pejić Bach, M., Krstić, Ž., Seljan, S., & Turulja, L. (2019). Text Mining for Big Data Analysis in Financial Sector: A Literature Review. *Sustainability*, *11*(5). <https://doi.org/10.3390/su11051277>
- Santos, M., & Laureano, R. M. S. (2021). Developing a vulnerability-based conceptual model for managing risk in nonprofit projects: a multicase study in a European country. *Public Management Review*. <https://doi.org/10.1080/14719037.2021.1972685>
- Santos, M. R. C., & Dias, R. (2021). *Accountability and transparency in the Nonprofits: Evidences from online crowdfunding during COVID-19 pandemic*. <https://doi.org/10.31410/EMAN.2021.49>
- Santos, M. R. C., & Laureano, R. (2021). COVID-19-Related Studies of Nonprofit Management: A Critical Review and Research Agenda. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*.
- Santos, M. R. C., Laureano, R., & Moro, S. (2020). Unveiling Research Trends for Organizational Reputation in the Nonprofit Sector. *Voluntas*, *31*, 56–70. <https://doi.org/10.1007/s11266-018-00055-7>
- Santos, M. R. C., Nunes, S., Dominginhos, P., Mourato, J., Mata, C., & Teixeira, N. M. (2021). Financial Capacity During a Pandemic Crisis: Insights From the Non-Profit Sector. In N. M. Teixeira & I. Lisboa (Eds.), *Handbook of Research on Financial Management During*

- Economic Downturn and Recovery* (pp. 59–76). IGI Global. <https://doi.org/10.4018/978-1-7998-6643-5.ch004>
- Shah, S. H. H., Lei, S., Ali, M., Doronin, D., & Hussain, S. T. (2019). Prosumption: bibliometric analysis using HistCite and VOSviewer. *Kybernetes*, 49(3), 1020–1045. <https://doi.org/10.1108/K-12-2018-0696>
- Shyu, G.-S., Lin, S.-J., Fang, W.-T., & Cheng, B.-Y. (2020). How to Screen Suitable Service Improve Community Health Care Services by University Students in Taiwan. *International Journal of Environmental Research and Public Health*, 17(15). <https://doi.org/10.3390/ijerph17155402>
- Singh Yadav, A. K., & Sora, M. (2021). Fraud detection in financial statements using text mining methods: A review. *IOP Conference Series: Materials Science and Engineering*, 1020(1). <https://doi.org/10.1088/1757-899X/1020/1/012012>
- Sundarasan, S., Chinna, K., Kamaludin, K., Nurunnabi, M., Baloch, G. M., Khoshaim, H. B., Hossain, S. F. A., & Sukayt, A. (2020). Psychological Impact of COVID-19 and Lock-down among University Students in Malaysia: Implications and Policy Recommendations. *International Journal of Environmental Research and Public Health*, 17(17). <https://doi.org/10.3390/ijerph17176206>
- van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. <https://doi.org/10.1007/s11192-009-0146-3>
- Verma, S., & Gustafsson, A. (2020). Investigating the emerging COVID-19 research trends in the field of business and management: A bibliometric analysis approach. *Journal of Business Research*, 118(July), 253–261. <https://doi.org/10.1016/j.jbusres.2020.06.057>
- Wang, T. (n.d.). *Machine Learning and Text Mining in Investor Sentiment*.

