Bibliometric Review of Research in Financial Health

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3 January 2021

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Abstract

Financial Health is a multi-dimensional concept that has taken shape over the past 20 years, and continues to develop. It arises from the incorporation of multidisciplinary components to the financial behaviour of individuals, allowing a good measurement of the quality of life of households and the economic stability of companies. In order to continue expanding the research associated with Financial Health, we have developed a bibliometric analysis that allows us to have a panoramic view of the most outstanding actors, institutions, authors, articles and countries that have the greatest importance worldwide. The research considers the use of VOSviewer software in order to model the bibliographic information associated with Financial Health and present it in an easy and simple manner to understand. The outcomes show a greater volume of publications from English speaking countries (United States, England, Australia and Canada) and the top 3 of the most cited sources is consistent with what we expected to get: 1 - Journal of Finance, 2 - Journal of Economics and Finance and 3 - American Economics Review. Finally, the institutions that most influence Financial Health research correspond to North American entities.

Keywords: Bibliographic Study, Financial Health, VOSviewer.

1. INTRODUCTION

One of the most controversial theories in the study of people's behaviour is that monetary wealth allows them to improve their happiness (utility). (Gardner & Oswald 2001) managed to positively correlate money with people's happiness. They showed empirically that if individuals receive a windfall in a particular year, they tend to report less mental stress and greater happiness the following year. The traditional view for understanding and analysing people's well-being is highly related to the monetary (pecuniary) income they receive. Johnson and Krueger (2006) explore the accuracy of assuming that wealth (income) has a direct contribution to people's satisfaction, concluding that the perception of controlling the financial situation is directly related to the satisfaction of individuals. For enterprises, Dobbie et al. (2017) suggest that greater (and better quality) access to finance may be motivated by more robust financial health. Noronha & Singal (2004) provide empirical evidence pointing to a positive correlation between the financial health of airlines and the level of operational safety they provide to their passengers, noting that financially weak firms exhibit 10% more air accidents than those firms with high financial health. Barth, Beaver & Landsman (1998) found that the quality of financial tests for predicting the failure of various industries is affected by the financial health of the firm. In detail, the book value of equity has greater explanatory power for failure when the firm under analysis is in low financial health, while net income is a better predictor of failure in a firm with high financial health.

By incorporating multidisciplinary aspects in the analysis of monetary well-being along with the growing importance of continuous improvement in the quality of life of households and stability for businesses, the concept of Financial Welfare emerged at the end of the 20th century as a way of describing the level of financial health of individuals. In the first decade of the 21st century, Financial Welfare is conceptualized as an active and desired state of Financial Health, being a "multidimensional and integral concept that incorporates financial satisfaction, objective state of the financial situation, financial attitudes and financial behaviour, which cannot be quantified through a single measurement" (Joo, 2008). Over the past 10 years, a number of concepts have emerged that aim to describe financial health from various perspectives. Vooslo et al. (2014) associated financial well-being with the perceived ability of individuals to effectively control the use of their resources, although this idea would be linked more to people's knowledge than to their feelings of well-being. Brüggen et al. (2017) include complementary elements to the definition of financial well-being, such as individuals' cognition, emotions, relationships and actions.

Our motivation for conducting a bibliometric analysis of international financial health is based on three fundamental aspects: (i) It is an area of finance that has been little explored, developing mostly over the last 20 years (Fig. 1 shows the published documents that have Financial Health as a central theme, considering articles, reviews, letters and notes), (ii) obtaining an appropriate measurement is not easy to do since people do not always have (or remember) 100% of the records of their financial decisions (Dilla, File, Solomon & Tomassini, 1991) and (iii) combines psychological elements of individuals with traditional financial elements to generate new measures of well-being, Munyon et al, (2020) developed a valid measure to quantify financial security, and their findings show that there is a positive correlation with the personal satisfaction of workers.

The purpose of our article is to identify the leading institutions in the subject, the most influential authors along with their most cited publications, and the countries leading the publications. In addition, we hope to motivate future research to address financial health issues that have not been widely developed in the current literature, allowing a more comprehensive understanding of its reach and where the efforts should be placed in the coming years.

The focus of our bibliometric analysis is on the documentation published in the Web of Science Main Collection between 1975 and April 2020, characterized by the search for the expression "Financial Health". The information obtained is summarized in tables and charts that allow us to publicize the institutions, authors, articles, among others, that have contributed most to the dissemination of scientific material related to Financial Health. The study also includes a Visualization of Similarities through the application of the VOSviewer software, obtaining graphs of various maps of the bibliographic material available between the dates mentioned.

This document is structured as: Section 2 discusses the bibliometric methods applied in the article. Section 3 shows the outcomes, including details of institutions that publish the most research on Financial Health, authors that produce the most articles, countries that are most involved, among others. Section 4 presents a graphic bibliometric analysis carried out with the VOSviewer software. Section 5 summarizes the main findings and limitations of the research.

2. BIBLIOMETRIC METHODOLOGY

Bibliometric analysis is the quantitative study of existing bibliographic material at a given date. It gives us a panoramic view of a field of research that can be classified by different variables of interest (Broadus, 1987). Bibliometrics had its origin in librarianship (science that studies libraries in all its aspects) and information sciences (Merigó et al., 2015), generating greater interest in the international scientific community, in accordance with the growing development of the internet and databases, becoming the main methodology for the objective and quantitative analysis of research. At present, there are many and diverse areas of research that have deep bibliometric perspectives, highlighting Economics, Health, Administration, Ethics, Natural Sciences, among others.

To quantify the impact of publications, there are several bibliometric indicators that represent such information. In our study, we will evaluate aspects associated with productivity and influence. Productivity is usually measured by counting the number of publications made by an Author, Journal, Institution and/or Country, while influence is associated with the number of citations that are registered. However, these aspects are not necessarily exclusive, and some researchers have managed to unify both criteria in a single measurement. The h-index is one of the most widely used (Hirsch, 2005), and combines the minimum thresholds of the number of publications with the number of corresponding citations. That is, if a country, institution and/or author presents an h-index equal to X, it implies that this country, institution and/or author has X number of documents with X number of citations each, but does not have X+1 documents with X+1 number of citations. We understand that the higher the h index, the greater the combined impact of influence and productivity of a given author, institution or country.

Our research also includes Visualization of Similarities using the VOSviewer software, generating graphs of various maps of the selected bibliographic material.

2.1. Co-Authorship: Quantifies the number of documents produced collaboratively by more than one author, institution or country.

2.2. Co-Occurrence: Identifies the author's keywords with the highest frequency and the keywords that appear most frequently in the same document.

2.3. Citations: Analyze how documents are cited between each other, counting the number of times document A quotes document B and vice versa. This analysis can be extended to Journals, Authors, Organizations and Countries.

2.4. Bibliographic coupling: This occurs when two works refer to a third common work in their bibliographies. It is useful for identifying related research profiles. This analysis can be extended to Journals, Authors, Organizations and Countries.

The database published in the Web of Science Main Collection includes material from a wide range of research areas. It currently contains more than 15,000 journals and 50,000,000 articles classified into 251 thematic categories.

Table 1.
Journal and Index h of the 10 most cited articles in Financial Health

Article	Journal	h-index
Relative Valuation Roles Of Equity Book Value And Net Income As A Function Of Financial Health	Journal of Accounting and Economics	132
Neural Networks - A New Tool For Predicting Thrift Failures	Decision Sciences	97
Financial Factors And Exporting Decisions	Journal of International Economics	121
Coping With Out-Of-Pocket Health Payments: Empirical Evidence From 15 African Countries	Bulletin of the World Health Organizatio	148
Healthy Mind - Healthy Organization - A Proactive Approach To Occupational Stress	Human Relations	113
An Empirical Analysis Of Analysts' Cash Flow Forecasts	Journal of Accounting and Economics	132
Determinants Of Audit Quality In The Public-Sector	Accounting Review	133
Informed Trading Before Analyst Downgrades: Evidence From Short Sellers	Journal of Financial Economics	223
Financial Factors And The Margins Of Trade: Evidence From Cross-Country Firm-Level Data	Journal of Development Economics	55
Tests Of The Generalizability Of Altman'S Bankruptcy Prediction Model	Journal of Business Research	158

Abbreviations: h-index corresponding to the journal of publication

Our bibliometric analysis is characterized by the search for the keyword "Financial Health" from 1975 to April 2020.

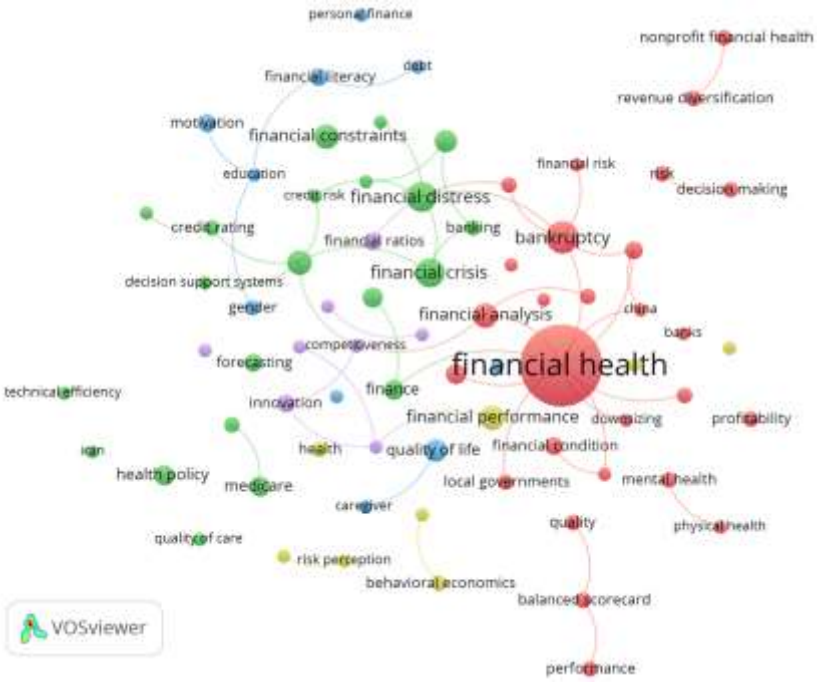

Figure 1. Analysis of at least 3 Keywords using VOSviewer

When analysing Figure 1, the keyword "Financial Health" appears centrally and surrounded by various other expressions, in accordance with the multidimensional character it presents as a concept. It is possible to observe 5 large clusters (distinguished by color). In red and central, Financial Health appears closer to concepts such as Financial Analysis, Bankruptcy and Profitability (Red would correspond to finance). In green appear concepts linked to financial risks, such as Credit, Rating and Crisis, also associated to finance. In blue we can highlight words linked to Learning, such as Literacy, Education and Personal Finance. And to a lesser extent, there are the purple (Innovation and Competitiveness) and yellow (Behavioral Finance) clusters, which do not have direct links with Financial Health but tend to be reported jointly. We focused on the most representative research elements, corresponding to articles, reviews, letters and notes, with a total of 685 publications.

Since 2015, the total amount of publications in Financial Health has grown considerably. There are at least two factors that can explain this behaviour. Both the number of researchers and the number of research presentations have increased significantly. In addition, the development of technology facilitates the management of databases, accelerating the process of bibliographic review and evidence collection by researchers (Merigó et al., 2015).

3. RESULTS

The earliest approach to Financial Health dates back to 1979 with the publication of the article "Assessing the Financial Health of Institutions" by Nathan Dickmeyer, who proposed an indicator to be used considering the availability of cash flows and income/expenditure trends as a financial health proxy. Three decades later we can see an increase in interest in research associated with Financial Health, as shown in Figure 2.

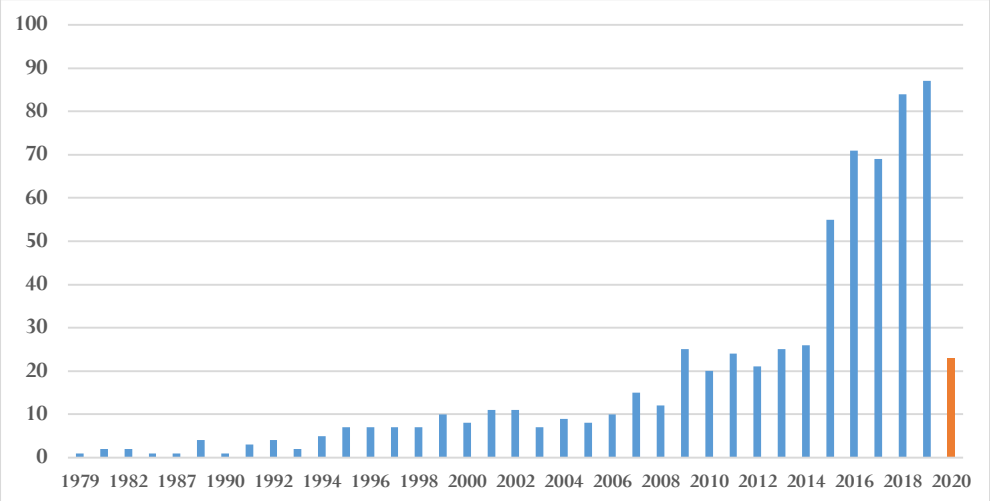

Figure. 2. Evolution of publications related to Financial Health

By using the VOSviewer software, we are able to identify the most productive and influential countries and universities, the United States being the largest publishing nation. Table 2 and Table 3 show the countries and institutions in the United States with the greatest impact.

Table 2.
North American institutions with the greatest impact in publications related to Financial Health

Institution	h-index	TC	TP	C/P	≥ 200	≥ 100	≥ 50	≥ 20	≥ 10	≥ 1
Texas University	60	405	17	24	0	1	3	5	6	16
Stanford University	133	322	2	161	1	1	1	2	2	2
Chicago University	49	298	4	75	1	1	1	1	1	2
Georgetown University	116	239	3	80	0	1	3	3	3	3
International Monetary Fund	96	202	4	51	0	1	1	1	1	3
Washington University	69	190	8	24	0	0	2	3	5	8
California University	73	180	9	20	0	1	1	1	2	8
Harvard University	66	155	6	26	0	0	2	2	2	4
Columbia University	75	149	6	25	0	1	1	1	4	6
Cornell University	29	149	3	50	0	0	1	2	2	3
Troy State University	158	108	1	108	0	1	1	1	1	1
Bentley University	120	105	2	53	0	0	1	2	2	2
Florida State University	59	105	3	35	0	0	1	1	3	3
Rush University	85	94	1	94	0	0	1	1	1	1
Boston University	59	82	4	21	0	0	0	1	3	4
Massachusetts Institute of Tech	264	81	1	81	0	0	1	1	1	1

Abbreviations: The index h is the average of the index of the journals where the universities have made their publications. TP = Total Publications, TC = Total Citations. C/P = Average Citation per Publication. ≥200, ≥100, ≥50, ≥20, ≥10, ≥1 = Number of documents with a quantity equal to or greater than 200, 100, 50, 20, 10 and 1 citation, respectively.

Table 3.
Countries leading the publications related to Financial Health

Country	h-index	TC	TP	C/P	≥ 200	≥ 100	≥ 50	≥ 20	≥ 10	≥ 1
USA	60	4859	317	15	2	8	26	56	99	254
England	57	721	43	17	1	2	3	7	12	31
China	68	294	14	21	0	0	2	5	7	12
Netherlands	79	241	9	27	0	0	2	3	5	7
France	78	217	9	24	0	1	1	3	6	8
Singapore	50	195	8	24	0	1	2	2	2	7
Australia	55	165	18	9	0	0	1	3	3	11
Canada	47	155	21	7	0	0	1	1	4	16
Switzerland	143	140	3	47	0	1	1	2	2	2
Spain	29	126	20	6	0	0	0	2	3	14
Taiwan	62	116	6	19	0	0	0	2	3	6
Russia	68	110	7	16	0	0	1	2	2	3
Slovakia	42	106	16	7	0	0	0	2	3	12
Zealand	30	89	6	15	0	0	1	2	2	3
Czech Repub	33	84	18	5	0	0	0	0	4	12
Italy	42	75	9	8	0	0	0	2	3	6
Germany	47	63	6	11	0	0	0	2	3	4
Poland	85	61	6	10	0	0	0	1	3	5
Iran	38	50	10	5	0	0	0	1	1	5
Japan	40	48	7	7	0	0	0	0	2	6

Abbreviations: See table 2.

3.1. Bibliographic coupling: it happens when two articles reference a third common article in their bibliographies.

3.1.1. Articles.

Table 4.
15 articles with the most bibliographic coupling

Articles	Citations	Total Link Strength
Barth (1998)	301	10.00
Salchenberger (1992)	297	2.00
Greenaway (2007)	201	27.00
Leive (2008)	194	3.00
Cooper (1994)	167	0.00
Defond (2003)	150	12.00
Deis (1992)	136	15.00
Christophe (2010)	126	1.00
Berman (2010)	108	11.00
Grice (2001)	108	10.00
Ling (2004)	105	0.00
Hubbard (2002)	105	22.00
Bellone (2010)	103	26.00
Lacher (1995)	97	2.00
Thompson (2000)	95	23.00

Descriptions: Total Link Strength is a numerical representation of the strength of links. The greater the number, the stronger the connection between authors.

Relative valuation roles of equity book value and net income as a function of financial health (Barth 1998) is the article with the highest number of citations related to bibliographic coupling, which was published in the Journal of Accounting and Economics. Neural networks - A new tool for predicting thrift failures (Salchenberger 1992) is the 2nd in the ranking, published in the Journal Decisions Sciences meanwhile financial factors and exporting decisions (Greenaway 2007) published in the Journal of International Economics completes the list of the top 3 documents with the most bibliographic coupling.

3.1.2. Journals with at least 2 articles and a minimum of 10 citations.

Table 5.
15 journal with the greatest bibliographic coupling

Journal	h-index	TP	TC
Journal of Accounting and Economics	132	2	451
Journal of Financial Economics	223	6	366
Health Affairs	156	8	242
Accounting Review	133	3	218
Journal of Business	83	2	193
European Journal of Operational Research	226	4	167
Journal of Banking and Finance	135	9	156
Strategic Management Journal	253	2	141
Journal of Dairy Science	166	2	140
Journal of Business Research	158	3	123
M&Som-Manufacturing & Service Operations Manage	71	3	122
Journal of Construction Engineering and Management	95	3	115
Journal of Business Ethics	147	5	102
Auditing-A Journal of Practice and Theory	73	3	96
Review of Financial Studies	157	2	95

Abbreviations: See table 2.

3.1.3. Institutions with at least 4 documents and at least 100 citations.

Table 6.
15 institutions with the greatest bibliographic coupling

Institution	TP	TC
Stanford University	6	374
University North Carolina	7	356
Int Monetary Fund	5	291
Hong Kong Univ Sci & Technology	5	249
University Nottingham	4	224
University Illinois	10	196
Florida State University	7	179
Natl. Univ. Singapore	4	179
Harvard University	6	164
Cornell University	6	163
Columbia University	4	134
Rutgers State University	5	123
City. Univ. Hong Kong	4	116
University Penn	10	113
University Zilina	6	100

Abbreviations: See table 2.

3.2. Co-occurrence: Minimum 5 repetitions of an author's keyword.

Table 7.
Author's keywords

Keyword	Occurrences	Total Link Strength
Financial Health	52	12.00
Bankruptcy	12	5.00
Financial Distress	11	2.00
Financial Crisis	10	4.00
Bankruptcy Prediction	8	2.00
Financial Analysis	8	3.00
Financial Constraints	8	1.00
Financial Performance	8	2.00
Capital Structure	7	3.00
Quality Of Life	7	1.00
Finance	6	5.00
Financial Management	6	2.00
Health Policy	6	1.00
Management	6	3.00
Medicare	6	2.00
Data Envelopment Analys	5	3.00
Financial Condition	5	2.00
Financial Literacy	5	0.00
Financial Ratios	5	0.00
Forecasting	5	1.00
Innovation	5	0.00
Motivation	5	0.00

Abbreviations: See tables 2 and 4.

Financial Health is the most frequently repeated keyword in our research. Most commonly related words include Bankruptcy, Financial Stress and Financial Crises.

3.3. Co- Authorships.

3.3.1. Analysis by author

Table 8.
Top 10 authors with the most co-authorships

Author	TP	TC	C/P	Total Link Strength
Barth, Me	1	301	301	1.00
Beaver, Wh	1	301	301	1.00
Landsman, Wr	1	301	301	1.00
Cinar, Em	1	297	297	1.00
Lash, Na	1	297	297	1.00
Salchenberger, Lm	1	297	297	1.00
Guariglia, Alessandra	2	228	114	2.00
Greenaway, David	1	201	201	1.00
Kneller, Richard	1	201	201	1.00
Leive, Adam	1	194	194	1.00

Abbreviations: See table 2.

3.3.2. Institutions:

Table 9.
Top 20 institutions with the most co-authorships

Institution	h-index	TP	TC	C/P
Stanford Univ	133	6	374	62
Univ N Carolina	33	7	356	51
Loyola Univ	92	1	297	297
IMF	96	5	291	58
Hong Kong Univ	83	5	249	50
Univ Nottingham	116	4	224	56
Who	33	2	205	103
Illinois Univ	43	10	196	20
Florida State Univ	101	7	179	26
Natl Univ Singapore	81	4	179	45
Harvard Univ	66	6	164	27
Cornell Univ	29	6	163	27
California Univ	73	1	150	150
Natl Bur Econ Res	45	2	149	75
Texas Univ	60	1	136	136
Columbia Univ	75	4	134	34
George Mason Univ	56	3	130	43
Georgetown Univ	116	3	125	42
Rutgers State Univ	30	5	123	25
FED	73	3	121	40

Abbreviations: See table 2.

3.3.3. Countries:

Table 10.
Top 10 países con mayores co-autorías

Country	h-index	TP	TC	C/P
USA	60	319	5005	16
England	57	54	660	12
China	68	21	386	18
France	78	13	349	27
Switzerland	143	5	344	69
Singapore	50	10	275	28
Netherlands	79	11	241	22
Italy	42	17	205	12
South Korea	24	14	205	15
Australia	55	21	196	9

Abbreviations: See table 2.

As we have previously stated, United States is the leading country in co-authorship, with over 5,000 related citations and 319 publications. Much further back we look at England with 660 citations and 54 publications. China comes in 3rd with 21 publications and 386 citations.

4. GRAPHIC ANALYSIS

The analysis of similarities using VOSviewer allows you to visualize bibliographic aspects of the documents, countries, authors, among others, such as the number of citations, number of documents, etc. The size of the generated nodes represents the number of citations corresponding to the variable we want to analyze. The larger the node, the greater the number of citations of the item we are studying. The lines (connections) represent the existence of a citation in any direction between two nodes. Usually it is considered a repetition of 100 connections, with the purpose of showing the most representative ones and avoiding overloading the images, facilitating their later analysis. In addition, the distance between the nodes corresponds to the tendency of studies, journals, authors, institutions, documents and countries to be cited together by other research. The closer two or more nodes are, the greater the tendency to be published and cited by other documents, countries, authors, organizations, etc. Finally, the colors of the nodes correspond to the group (cluster) in which they are located. It is often possible to observe multiple associations, but to improve the interpretation of the graphs, we have reduced them to 4-5 representative groups for each component to be analyzed.

4.1. Bibliographic coupling.

4.1.1. Journals:

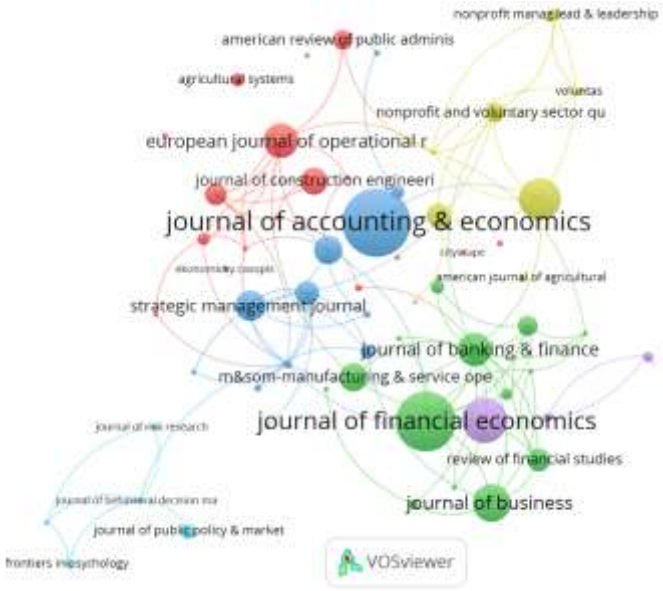

Figure. 3. Journals with the greatest bibliographic coupling, threshold of 10 citations, 2 documents and 100 connections.

Journal of Accounting and Economics is dominant in Figure 3, totaling over 430 citations in more than 5 published papers. Considering that the distance between the elements represents the tendency to publish documents jointly, Journal of Financial Economics appears as the second most relevant actor in Financial Health publications and citations, but quite far from the dominant journal. However, both can be listed within the area of Finance and Business. Finally, Journal of Business tends to relate more to the financial and banking areas.

4.1.2. Authors.

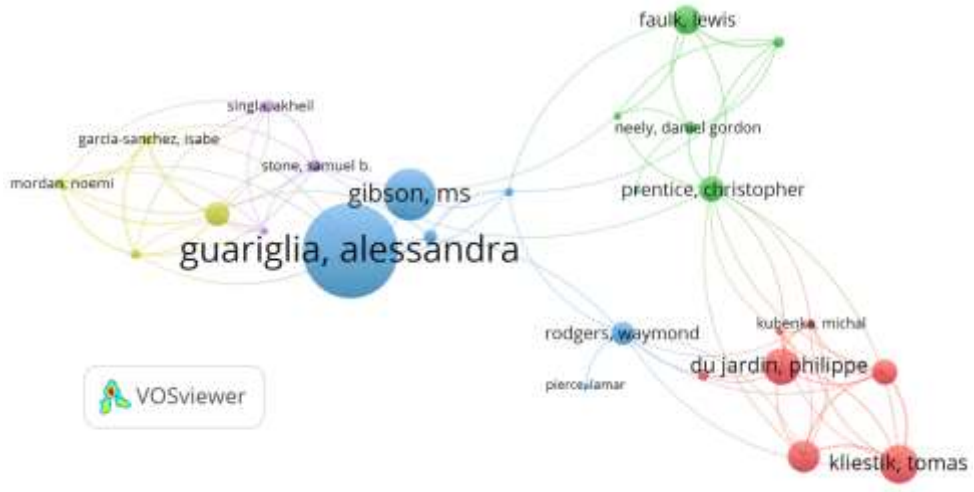

Figure. 4. Authors with the most bibliographical coupling, threshold of 10 citations, 2 documents and 100 connections.

Financial factor in exporting decisions (2007) is the paper written by Alessandra Guariglia with the greatest dominance of bibliographic coupling. Can bank health affect investment? Evidence from Japan (1995) is next in the list of bibliographic coupling, belonging to the author Michael S. Gibson. Both documents have a high tendency to be referred to together. Do investors value a firm's commitment to social activities? (2013) by Waymond Rodgers also presents a degree of bibliographical coupling, but of lesser magnitude. In the red cluster, research associated with bankruptcy is recorded, highlighting the work of Phillipe Du Jardin, Predicting bankruptcy using neural networks and other classification methods: The influence of variable selection techniques on model accuracy (2010), and Tomas Kliestik, Logit and probit model used for prediction of financial health of company (2015). Lastly, in the green cluster, the works of Christopher Prentice, Understanding nonprofit financial health: Exploring the effects of organizational and environmental variables (2016), and Faulk Lewis, Nonprofit competition in the grants marketplace: Exploring the relationship between nonprofit financial ratios and grant amount (2010), stand out.

4.1.3. Institutions.

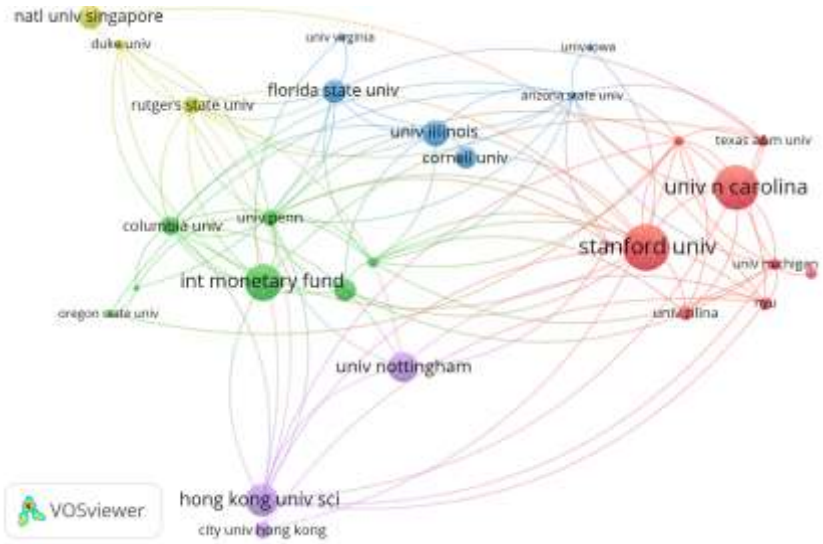

Figure. 5. Institutions with the greatest bibliographic coupling, threshold 4 documents, 40 citations and 100 connections.

The organizations that stand out are: Stanford University, University of North Carolina, International Monetary Fund, Hong Kong University of Science and the University of Nottingham. The graphic proximity between Stanford University and the University of North Carolina would indicate a tendency to be regularly referenced. The Hong Kong University of Sciences seems to form its own cluster (together with the University of Nottingham and the Hong Kong City University), distancing itself from western institutions.

4.1.4. **Countries**.

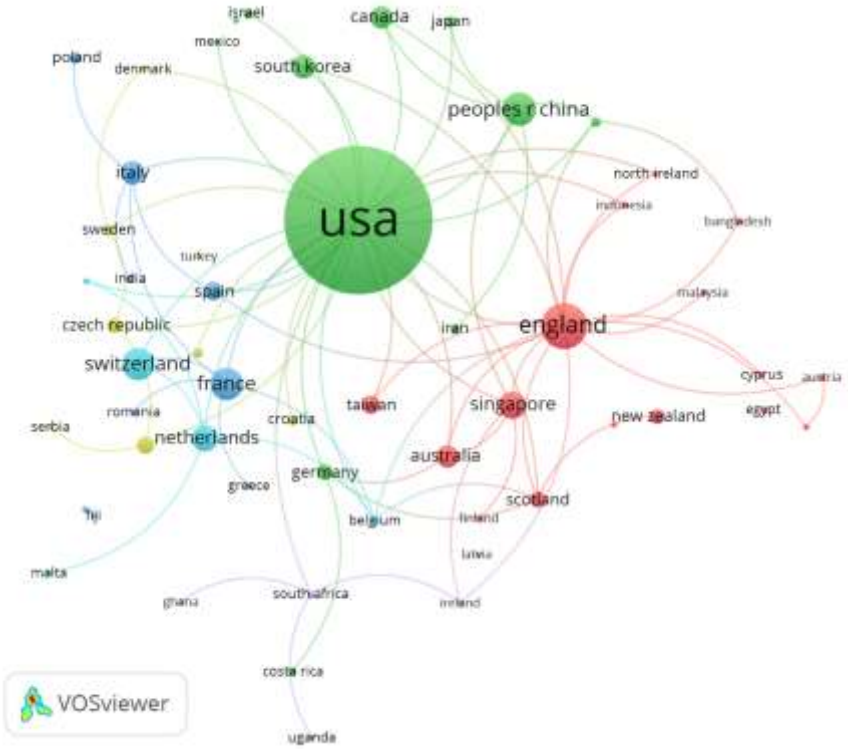

Figure. 6. Countries with the most bibliographic coupling, threshold 1 document, 5 citations and 100 connections.

United States appears as the country with the greatest impact on Financial Health research, being the nation with the greatest number of cross-references (bibliographic coupling) at a global scale. The graph does not show a clear trend of association between the United States and any particular country, although the closest correspond to England, China, Spain, South Korea, France, Canada and Italy. We highlight that England and China are the countries that complete the ranking of the nations that lead the measurement of bibliographic coupling.

4.2. Cites

4.2.1. Articles/Documents.

Figure. 7. Most cited articles. Threshold of 100 citations and 100 connections.

Considering the articles with 100 or more citations, the interconnection between financial factors and the margins of trade: Evidence from cross-country firm-level data (Berman 2010), financial factors and exporting decisions (Greenaway 2007) and financial constraints and firm export behaviour (Bellone 2010) stands out. Although we requested VOSviewer to display the top 100 connections, it is not unusual for the top articles to be unreferenced. This explains the graphic distance between the 3 documents mentioned and the rest of the research. Of the other research that has not been mentioned so far, we highlight Determinants of audit quality in the public sector (Deis 2010), An empirical analysis of analysts' cash flow forecasts (DeFond 2003), Tests of the generalizability of Altman's bankruptcy prediction model (Grice 2001), Are there bank effects in borrowers' costs of funds? Evidence from a matched sample of borrowers and banks (Hubbard 2002) y Coping with out-of-pocket health payments: empirical evidence from 15 African countries (Leive 2008).

4.2.2. Journals.

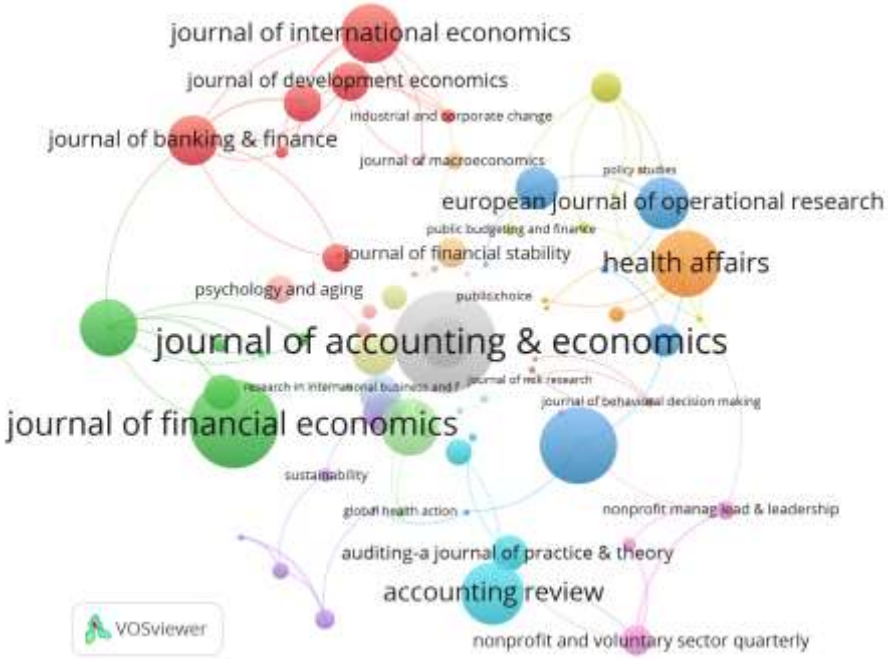

Figure 8. Most cited journals. Threshold of 1 document, 5 citations and 100 connections.

The Journal of Accounting and Economics, Journal of financial Economics, Journal of Business, Accounting Review and European Journal of Operational Research stand out, although the last-mentioned would not be closely related to the business, financial or economic areas in general.

4.2.3. Authors:

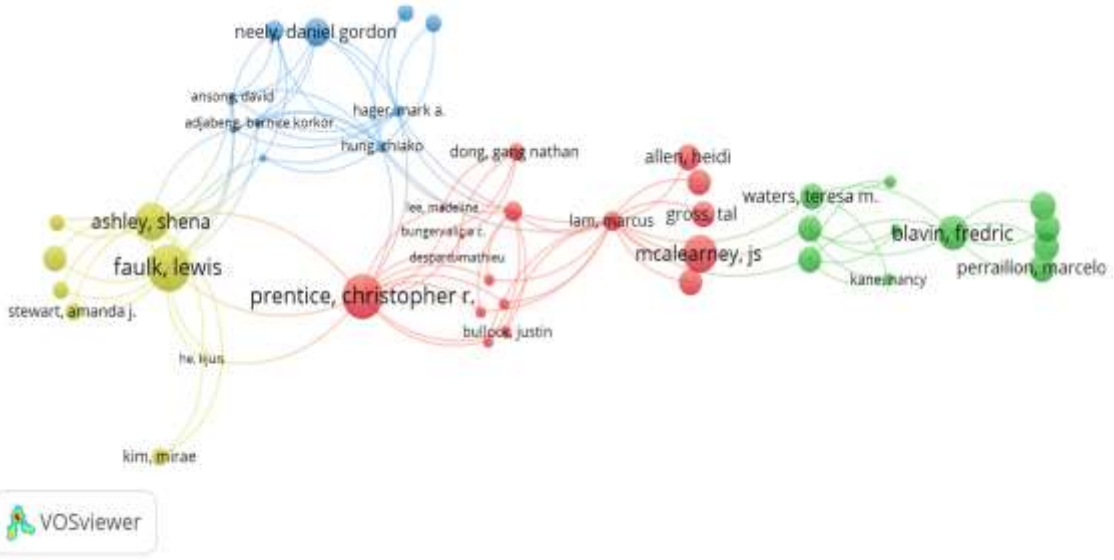

Figure 9. Most cited authors. Threshold of 1 document, 1 citation and 100 main connections without incorporating those not directly related.

Relative valuation roles of equity book value and net income as a function of financial health (Barth 1998) is the most widely cited article published in the Journal of Accounting and Economics. Neural networks - A new tool for predicting thrift failures (Salchenberger 1992) is 2nd in the ranking, published in the Journal Decisions Sciences

while financial factors and exporting decisions (Greenaway 2007) published in the Journal of International Economics completes the list of the top 3 most cited authors.

4.2.4. Countries.

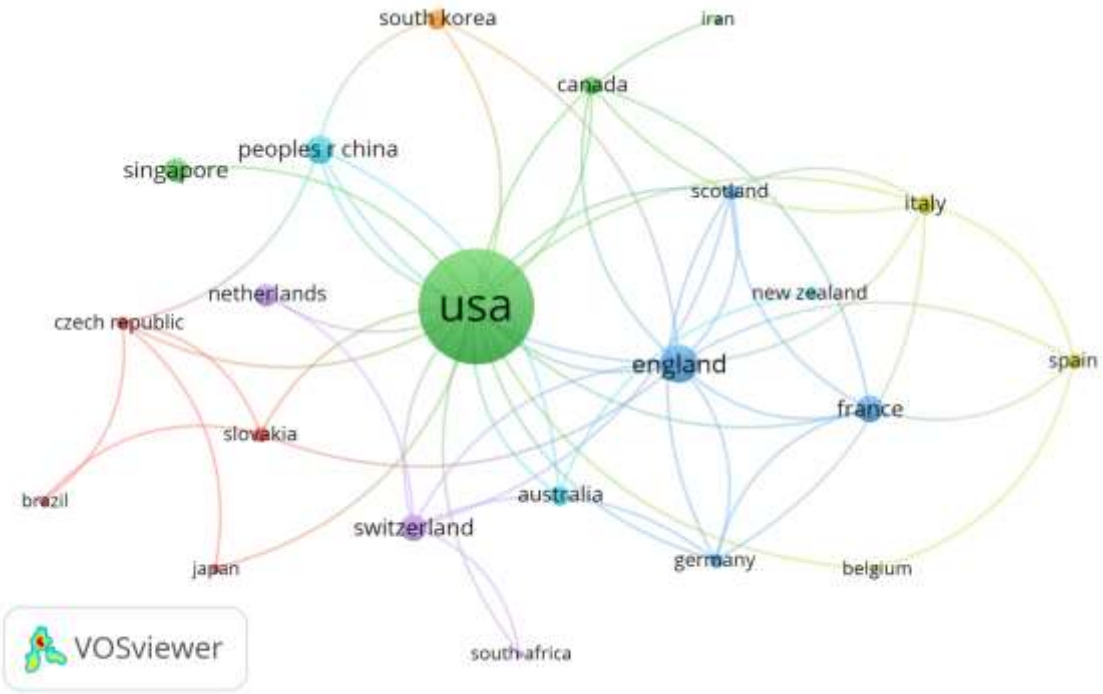

Figure. 10. Most influential countries. Threshold of 5 documents, 1 citation and 100 main connections.

United States appears to be the most influential country (most citations) in Financial Health's research. Figure 10, does not show a clear trend of association between the United States and any particular country, although the closest are England, China, Canada and Italy.

4.3. Co-occurrence: Key words most often repeated by the author

Fig. 11. Most repeated Keyword, TOP 10 worldwide.

Financial Health is, by our research definition, the keyword that should be most dominant in the graph. Figure 11, confirms our previous hypothesis. Figure 12 shows a visualization of the author's keywords that have at least 3 repetitions. Again Financial Health is the dominant word in the chart.

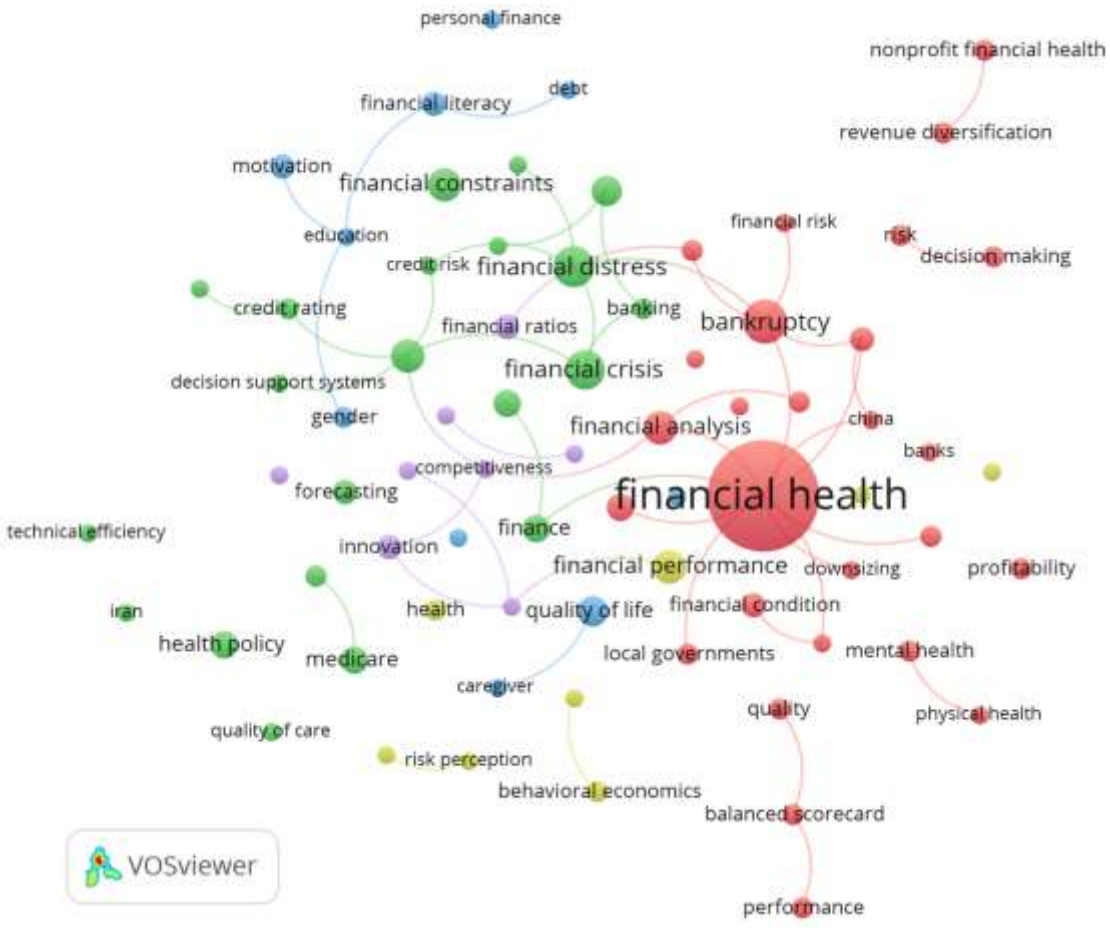

Figure 12. Author's keyword repeated at least 3 times.

4.4. Co- Authorships.

4.4.1. Most cited institutions in co-authorship.

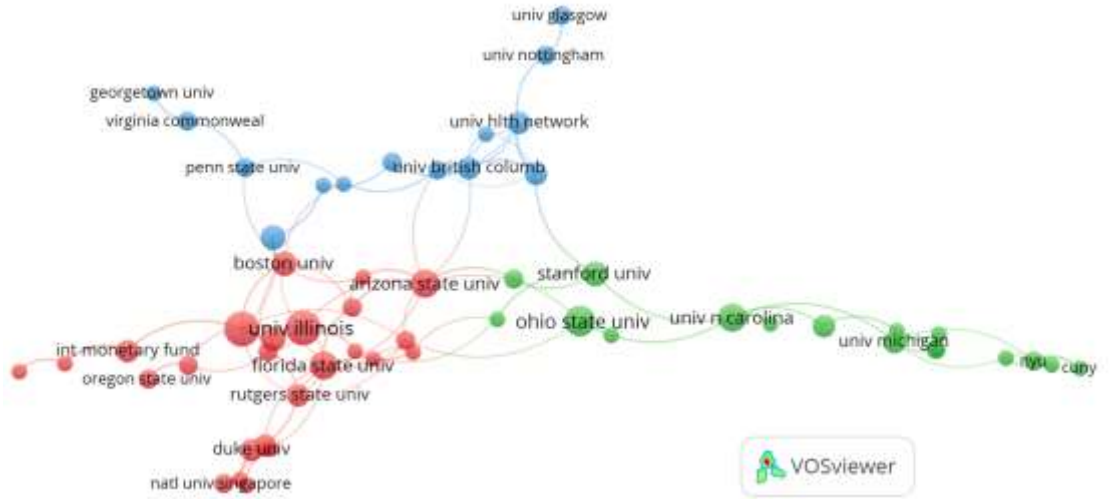

Figure. 13 Threshold of 3 documents and 5 citations. 100 connections.

The dominance in the previous graph corresponds to US institutions.

5. CONCLUSIONS

Financial Health is a multidimensional concept that has taken shape over the last 20 years, and has not managed to consolidate itself through a single measurement that allows for the quantification of what it represents as an economic-financial concept. It arises from the incorporation of multidisciplinary components to the financial behaviour of individuals, allowing a proxy for the quality of life of households and the economic stability of companies.

This research considered the use of the VOSviewer software and data delivered by Information Sciences, for the purpose of modelling the bibliographic information related to Financial Health. Our results show a higher volume of publications from English-speaking countries (USA, England, Australia and Canada) and the top 3 most cited sources are consistent with this: first appears Journal of Finance, followed by Journal of Economics and Finance and finally American Economics Review. Likewise, the institutions that most influence financial health research belong to North American entities, led by the University of Illinois, Florida State University, the International Monetary Fund, Stanford University and the University of North Carolina.

From our research, we suggest that there is ample opportunity to continue expanding analysis towards improved measures of financial well-being, although the quantified measure is likely to be highly related to American scientific trends. We suggest greater global interaction (excluding the US), in order to incorporate new methodological approaches.

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