

# From Business Modelling to the Leadership and Innovation in Business: Bibliometric Analysis (Banking as a Case)

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## Abstract

The analysis of approaches to defining the banking business model showed that digital financial technologies, e-commerce, information management are important factors that form the model of leadership and innovation in business. The development of risk management, risk assessment, profitability-risk-stability triangle balancing, which create relevant trends in the formation of business leadership models, has increasing importance for managers, clients and shareholders. The article identifies the dominant tendencies in the development of scientific thought (based on 6377 articles from 1991-2019 in journals indexed by Scopus and Web of Science) regarding the transformation of business models in banks and the future research directions with the help of bibliometric analysis (VOSviewer). The conducted analysis showed that in 2012-2017 the number of scientific articles about the transformation of banks' business models began to increase. It proves the relevance of business modelling for leadership and innovation in business. At the same time, the focus of research has shifted from general strategic management issues to risk management issues. In 2017, the number of articles studying the banking business model increased by 148% compared to 2012. Therefore, these articles in the subject area observe such areas as business, management, economics, econometrics, finance, social and computer sciences. Among the scientists who studied the banks' business models, most are scientists from the US, UK and India. In 2018, there was a significant increase in the number of articles on banking strategic management published in high impact journals, such as the Journal of Banking and Finance, the International Journal of Bank Marketing and Economic Modeling. The use of the VOSviewer has identified 8 research clusters exploring the issue from different perspectives. The first (largest) cluster consists of studies that examine banks' business models through decision-making and information management technologies, risk assessment and minimization mechanisms, the relationship between banking sales dynamics and the information databases etc. The second-largest cluster brought together researchers examining banks' business models in terms of the financial crisis effects, regulatory changes, business efficiency and stability (z-score), etc. The third-largest cluster is the study of business models through the dynamics of transformations in the financial market, in lending behaviour and business cycles. These three largest clusters confirm that the key to leadership and innovation in banking is the balance between the profitability-risk-stability triangle and information technology.

**Keywords:** Bank, Banking, Business Model, Leadership and Innovations in Business.

**JEL Classifications:** E5, M2, O3.



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## Introduction

The ongoing tendency on extending the banking regulation, the appearance of fintech innovation lead to a reorientation of the business activities banks, disappearance one's business models and appearance others. The strategic management terminology in the banking industry started to be used more frequently in the last decade after the World financial crisis 2007-2009, both by academics and banking professionals. In this paper, we performed a literature review regarding the use and the connections of business model terminology in the banking industry. First, the study aims to summarize the level of knowledge of business model terminology in the banking industry. A second aim is to correlate published material regarding business model to answer the

question regarding that terminology have strong connections with banking, information technology and regulation. Thus, at the first stage, the definition, principals and features of banking business model should be defined. Noted, that traditionally banking business model analysed with business strategy and market strategy (financial). However, the huge range of scientists in the papers (Osterwalder, 2004) analysed of banking business model as a synonym of banking strategic management which influences on the risk taken, profitability and soundness of banks. We used selective criteria like articles published in Clarivates, ScienceDirect, Scopus or Web of Sciences. Finally, the article proposes that as a future study we ought to analyse the link between strategy and business models on a sample of financial institutions.

## Literature Review

The widespread use of banking business mode terminology in academic literature is linked recently with the requirement of financial and bank regulator and development of technology companies.

The business models analysis was first introduced by Ayadi et al. (2011) in an initial attempt to identify the business models of 26 European banking institutions and to assess their performance between 2006 and 2009. The main finding indicated that the retail banking model has seemingly fared better through the crisis, compared to the other identified business models, namely investment and wholesale banks. The authors further recommended an annual monitoring exercise of bank business models to better understand their evolution within the macro and microeconomic contexts. The first pilot exercise, monitoring the business models of 147 banks, was released in December 2014 in (Ayadi & De Groen, 2014), to test the relevance of this approach. A more comprehensive monitoring exercise was launched in January 2016 in (Ayadi et al., 2016), which extended the sample from 147 banks to 2,542 banks, covering more than 95% of total assets of the European Union plus EFTA countries from 2005 to 2014 and accounting for 13,040 bank-year observations. The newest Monitor edition for Europe in (Ayadi et al., 2019) provides an updated identification of BBM for 3,287 banking groups and subsidiaries in the European Economic Area (EEA) and Switzerland, accounting for 25,402 bank-year observations and using Ayadi (2019) definition, methodology and financial stability framework.

Early the scientists in the paper (Osterwalder, 2004) associate's strategy, business models and process model (indeed on different business layers), considering that the words are addressing a similar problem. At the same time, in the papers (Magretta, 2002) asserts that strategy is not a business model, making a clear distinction between the two terms. Recently, opinions of Wirtz et al. (2016) are that the term strategic management needs additional researches, especially regarding the link between business models concept and other consecrated concepts in business management, including strategy.

Although there are many comprehensive studies about the business model terminology and concepts, Zott, Amit and Massa (2011) argue that there are no definite conclusions of scholars about what business model is, and the literature provides definitions that strongly relate with the theme of interest that scholars are covering. DaSilva and Trkman (2014: 379) have been pointing out that the term "has been misinterpreted and misused over the years and has consequently been inadequately understood and applied by both practitioners and scholars".

Banking history suggests, that banks suffered enormous losses due to lack of proper strategic management. Beltratti and Stulz (2009) observed poor and flexible management and very low-risk appetite which caused banks serious liquidity and financial issues.

The results of the analysis showed that range of scientists (Sanjeevan, N., 2017) have formed strategic planning based on an ample interpretation of banking sector that, along with the instruments and techniques from which it stems, there is an essential condition to operate in competitive markets. The concept of planning is examined in its stages, its importance and the benefits for the banking sector in implementing scheduling. The strategic plan model proposed here for the banking sector is examined in detail through the steps towards implementing a plan leading to business improvement.

The authors in the paper (Alani et al., 2018) analysing the linking between strategic orientation and product innovation identified that knowledge management was the core elements of strategic management.

Using direct evaluations, the scientists in the papers (Demidova et al., 2019; Sokolenko et al., 2017) analyze heterogeneity among the various business strategies that incorporate systemically important banks. They identify the true banking model in a portfolio context, that is, consisting of various combinations of bank assets

and funding sources. Next, they estimate the way distinct strategies have affected bank profitability and risk before the crisis, as well as their impact on the mortgage crisis.

Famous expert of World bank (Demirgüç-Kunt, A., Huizinga, H., 2010) examines the implications of bank activity and short-term funding strategies for bank risk and return.

The scientists (Björk, 2015; Lautenschläger, 2017; Finnegan, 2016; Barnes, 2015; Ogden, 2017; Accenture, 2015) analysing the banking industry indicator during its going through digital changes. It is cheaper to keep loyal customers than to acquire new ones (Björk, 2015). Customer migrated to digital channels. Mobile channels are far more likely to delight and less likely to annoy than the branch or call centre experiences. It causes an increase in loyalty with higher customer retention, repeat purchases and referrals. Customers increasingly expect to follow up with bank staff through digital chat, video or other real-time options and banks actively develop them (Bain & Company). Representatives of international financial institutions (Lautenschläger, 2017) considers that FinTech will change banks and could be three scenarios: banks might team up with FinTech, FinTech might break up the value chain of banking and FinTech could be swallowed up by big Tech companies and deeply transform the banking business. Digital challengers and FinTech giants present a threat for banks and will not go away soon, but at the same time, a wave of innovation in the financial sector offers several opportunities for banks, who able to move quickly (Finnegan, 2016). The banks will gain from many innovations. Square, for instance, is a system that makes it easier for small businesses to take card payments; it will boost banks' transaction volumes. The FinTech revolution will reshape finance and improve it (Financial services, 2015). New banks are operating only digital models and giving to their customers a full range of banking services in smartphone (Barnes, 2015). App in the smartphone can offer advice on wealth building, spending habits, money-saving tips (Ogden, 2017). Customers move at different speeds and make different decisions, every customer is a digital customer now – someone more and someone less, from the traditional customer to the digital-savvy one (Accenture, 2015).

The findings proved, that despite huge range investigations of the bank, their risk, profitability, market strategies, business strategies and models from different points of views, the banking business model issues have not analysed yet considering different aspects of bank activities, digitalisation, fintech innovation etc. In this case, the aim of the paper was analysed due to the tendency in the scientific literature on banking business model to identify future research directions.

## Methodology

The main hypothesis of investigation is checking the increasing tendency on analysing of banking business model issues by the scientists. For this purpose, the investigation was done in the following scheme:

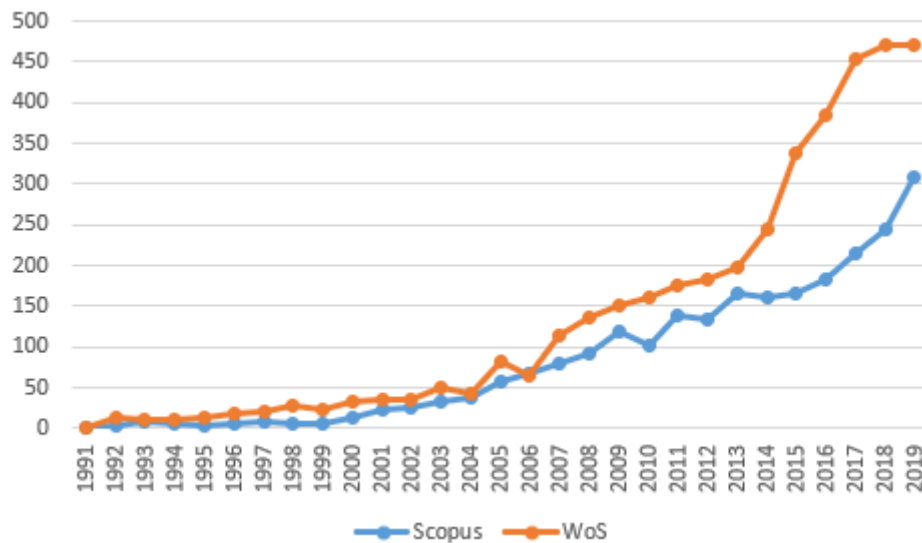
1. Identifying the quantity tendency of the papers which focused on the analyses of banking business model issues.
2. Allocating the main subject areas under analyses of banking business model issues.
3. Identifying the most citation papers and journals which contained the papers on banking business model.
4. Clustering the papers on the main directions for investigations with the purpose to identify the further options for analyses.

For the analysis, the following keywords were chosen: bank, banking, banking sector, banking business model. This study reviewed 6377 papers from Scopus and Web of Science. The time for analysis were 1991-2019. The analysis was done by using the software of VOSviewer, WoS analyse and Scopus analyses. Thus, VOSviewer allows to allocate and visualize the network of definitions which used and co-citation during the investigation of banking strategic management. Scopus and WoS tools allowed to analyse the publication towards different parameters: affiliation, journal, citation, number of the papers, funding, the subject area and citations. Thus, in the network visualization of VOSviewer allow to allocate and visualize the scientific direction which has strong relationships. The closer keywords are located to each other, the stronger their relations.

## Results

The findings of analysing proved that the numbers of paper which focused on banking business model in the database Scopus has been steadily increasing over the whole analysed period, with an average growth rate of 26%. The similar situation is observed with the numbers of paper which focused on banking business model, which published in the journals indexed by the WoS database, thus this database shows a significant growth rate of

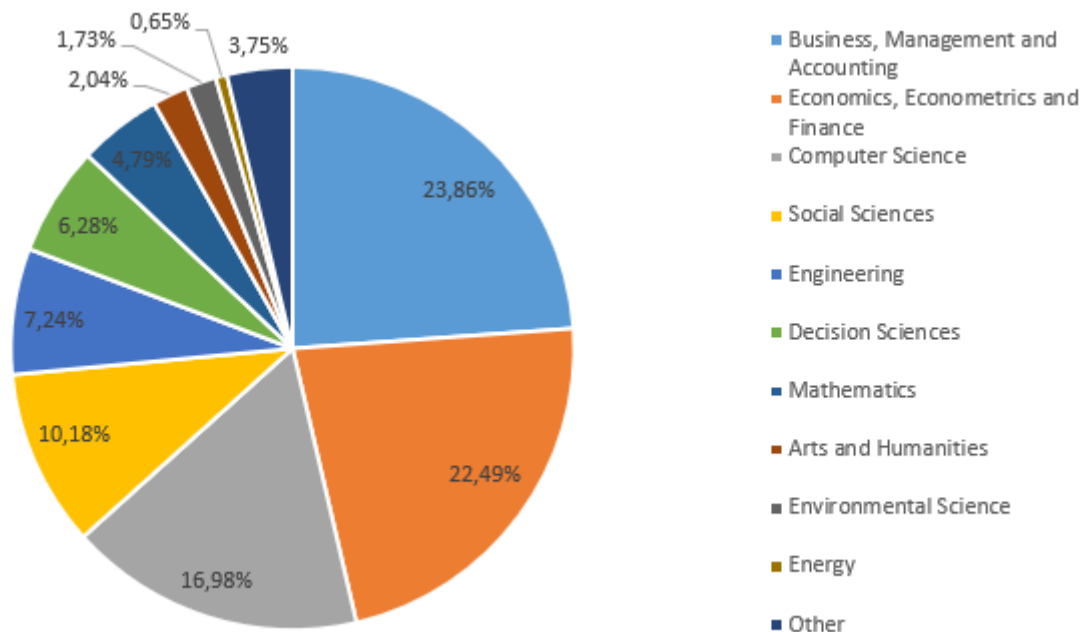
publications from 2013 to 2017. This may be justified by the widespread problems associated with the active introduction of digital technologies in the banking business, and a corresponding change in the paradigm and types of business models of banks in the relation to fintech innovations, the emergence of cryptocurrencies, changes in the regulatory environment, and so on. In 2017 the number of papers which analysed the banking business model was increased by 148% compared with the 2012 year (Figure 1).



**Figure 1. The number of documents in Scopus and WoS which contain the banking business model issues**

Source: Compiled by the author using data from Scopus and WoS

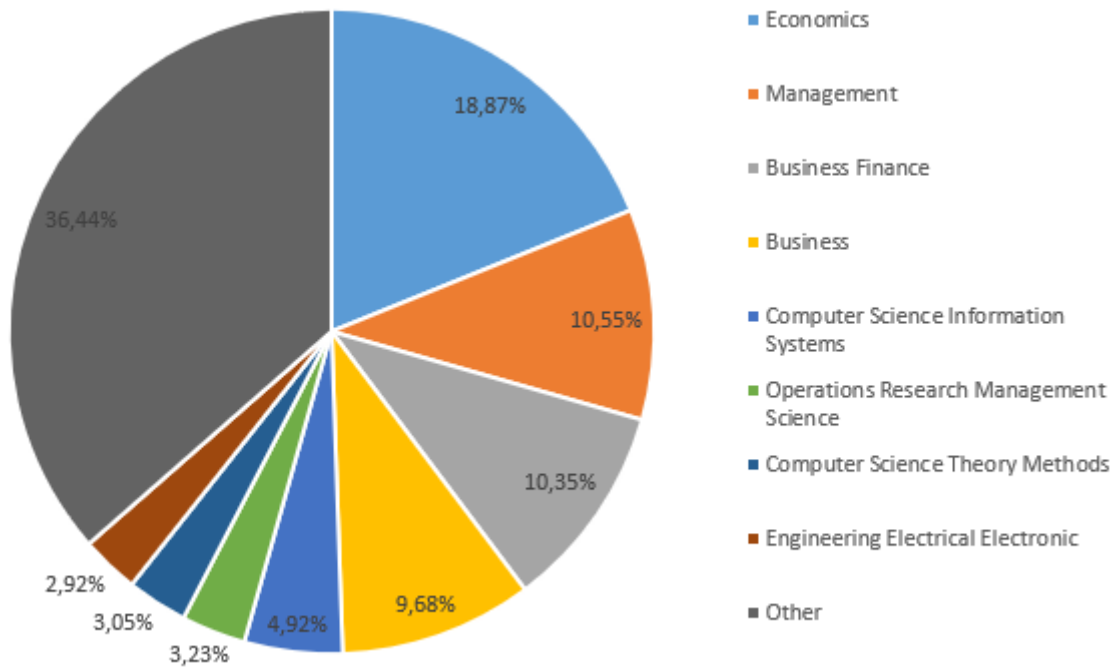
The findings proved that the banking business model was analysed according to data of Scopus in the framework of the subject area as follows: Business and Management – 23.86%; Economics, Econometrics and Finance – 22.49%; Computer science – 16.98; Social Sciences – 10.18%; and others (Engineering, Decision Sciences, Mathematics etc.) – 26.49%.



**Figure 2. The subject area in Scopus for analysing the banking business model issues**

Source: Compiled by the author using data from Scopus

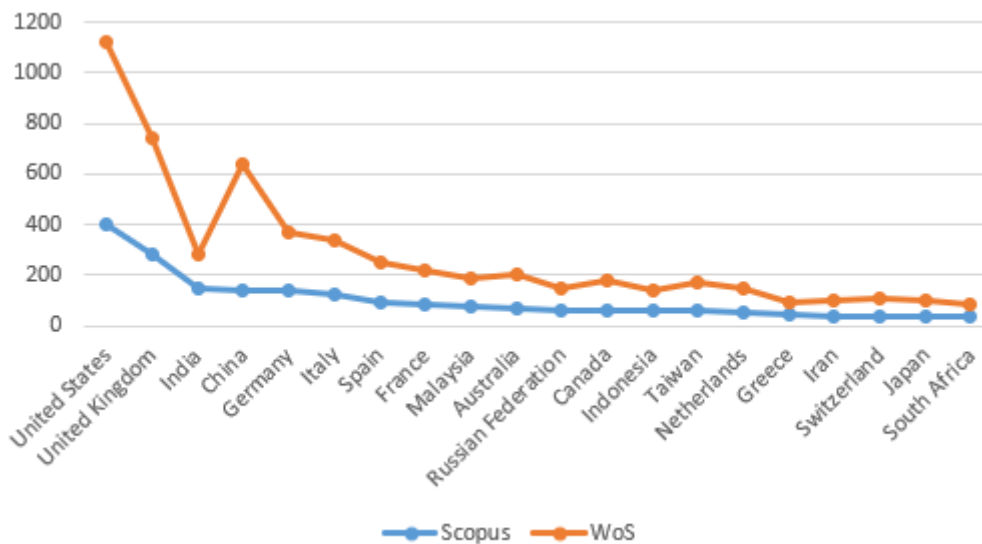
According to data of WoS in the framework of the subject area the banking business model was analysed as follows: Economics – 18.87%; Management – 10.55%; Business Finance – 10.35%; Business – 9.68%; and others (Social science, Development study etc.) – 50.55%.



**Figure 3. The subject area in WoS for analysing the banking business model issues**

Source: Compiled by the author using data from WoS

The analysis by country showed that mostly the scientist with the USA, United Kingdom, India and China affiliations investigated the banking business model issues. The top 20 countries' affiliation of the scientists which investigated the banking business model issues according to the WoS database is showed in Figure 4. Figure 4 also demonstrates the number of publications from these countries in the Scopus database.



**Figure 4. Top 20 countries' affiliations of the scientists which investigated the banking business model issues**

Source: Compiled by the author using data from WoS and Scopus

Besides, considering the findings from Scopus in 2018 the high ranked Journal of Banking And Finance, Banks and Bank Systems, International Journal of Bank Marketing began to publish more papers on banking business model issues (Table 1).

Table 1. The top 5 journals, indexed by Scopus, which published the papers on banking business model

Title of the Journal	Covered by Scopus	CiteScore 2018	SJR 2018	SNIP 2018	Numbers of the papers
Journal of Banking And Finance	1977 to 2019	3.08	1.599	1.857	23
Banks and Bank Systems	2006 to 2019	0.42	0.210	0.514	22
International Journal of Bank Marketing	1983 to 2019	3.31	0.76	1.468	21
Journal of Financial Services Research	1987 to 2019	1.86	0.965	1.307	18
Annals of Operations Research	1984 to 2019	2.58	1.032	1.334	15

Source: Compiled by the author using data from Scopus

Table 2. The top 5 journals, indexed by WoS, which published the papers on banking business model

Title of the Journal	Impact Factor 2018	JCR® Category	Rank in Category	Quartile in Category	Numbers of the papers
Journal Of Banking And Finance	2.05	Business, Finance	27 of 103	Q2	77
		Economics	79 of 363	Q1	
Economic Modelling	2.056	Economics	93 of 363	Q2	49
Journal of Economic Dynamics & Control	1.502	Economics	148 of 363	Q2	44
Journal of Money Credit and Banking	1.782	Business, Finance	40 of 103	Q2	44
		Economics	119 of 363	Q2	
Journal of Macroeconomics	0.91	Economics	243 of 363	Q3	34

Source: Compiled by the author using data from WoS

According to Scopus database 9 from 10 the most cited papers were published by the high ranked journals. The most cited papers were published by the scientists Rust, R.T., Zahorik, A.J. in 1993 in Journal of Retailing (Table 3). In 2013 famous scientists and expert of World bank Beck T., Demirgüç-Kunt A., Merrouche O. published the paper “Islamic vs. conventional banking: Business model, efficiency and stability” which cited 394 (Table 3) and examined the difference between Islamic banks and conventional banks. They found few significant differences in business orientation, also they found evidence, that Islamic banks are less cost-effective, but have a higher intermediation ratio, higher asset quality, are better capitalized and less likely to disintermediate during crises.

Table 3. The most cited papers on banking business model 1991-2019 according to Scopus database

Authors and Title	Year	Source title	Cited
Rust, R.T., Zahorik, A.J. Customer satisfaction, customer retention, and market share	1993	Journal of Retailing	1025
Stein, J.C. Information production and capital allocation: Decentralized versus hierarchical firms	2002	Journal of Finance	732
Meuter, M.L., Bitner, M.J., Ostrom, A.L., Brown, S.W. Choosing among alternative service delivery modes: An investigation of customer trial of self-service technologies	2005	Journal of Marketing	689
Anderson, E.W., Fornell, C., Rust, R.T. Customer satisfaction, productivity, and profitability: Differences between goods and services	1997	Marketing Science	653
Berger, A.N., Udell, G.F. Small business credit availability and relationship lending: The importance of bank organisational structure	2002	Economic Journal	624
Sampson, S.E., Froehle, C.M. Foundations and implications of a proposed Unified Services Theory	2006	Production and Operations Management	396
Beck, T., Demirgüç-Kunt, A., Merrouche, O. Islamic vs. conventional banking: Business model, efficiency and stability	2013	Journal of Banking and Finance	394
Greene, W. Fixed and random effects in stochastic frontier models	2005	Journal of Productivity Analysis	361
Wang, Y.-S., Lin, H.-H., Luarn, P. Predicting consumer intention to use mobile service	2006	Information Systems Journal	328
Kim, G., Shin, B., Lee, H.G. Understanding dynamics between initial trust and usage intentions of mobile banking	2009	Information Systems Journal	3278

Source: Compiled by the author using data from Scopus

The same situation of publishing according to the WoS database – 9 from 10 the most cited papers were published by the high ranked Journals (Table 2). In 2010 *Nobel Peace Prize laureate* Yunus Muhammad published the paper “Building Social Business Models: Lessons from the Grameen Experience” which cited 370 (Table 4), and it is the one most cited papers in the banking business model issues. The article traces the gradual development of Grameen's expertise in formulating social business models, which require new value propositions, value constellations and profit equations, and as such, resembles business model innovation.

Table 4. The most cited papers on banking business model 1991-2019 according to WoS database

Authors and Title	Year	Source title	Cited
Lecun, Y.; Bottou, L.; Bengio, Y.; et al. Gradient-based learning applied to document recognition	1998	Proceedings of the IEEE	9628
Rust, R.T., Zahorik, A.J. Customer satisfaction, customer retention, and market share	1993	Journal of Retailing	731
Stein, J.C. Information production and capital allocation: Decentralized versus hierarchical firms	2002	Journal of Finance	645
TAM, K.Y.; KIANG, M.Y. Managerial applications of neural networks - the case of bank failure predictions	1992	Management Science	552
Meuter, M.L.; Bitner, M.J.; Ostrom, A.L.; et al. Choosing among alternative service delivery modes: An investigation of customer trial of self-service technologies	2005	Journal of Marketing	547
Anderson, E.W., Fornell, C., Rust, R.T. Customer satisfaction, productivity, and profitability: Differences between goods and services	1997	Marketing Science	516
Berger, A.N., Udell, G.F. Small business credit availability and relationship lending: The importance of bank organisational structure	2002	Economic Journal	403
Yunus, M., Moingeon, B., Lehmann-Ortega, L. Building Social Business Models: Lessons from the Grameen Experience	2010	Long Range Planning	370
Chirinko, R.S. Business fixed investment spending – modelling strategies, empirical results, and policy implications	1993	Journal of Economic Literature	360
Beck, T., Demirgüç-Kunt, A., Merrouche, O. Islamic vs. conventional banking: Business model, efficiency and stability	2013	Journal of Banking and Finance	357

Source: Compiled by the author using data from Scopus

The findings from VOSviewer identified 8 clusters of the papers which investigated the banking business model from the different points of views (Figure 5) (Appendix 1).

The first biggest cluster (red cluster) merged the paper which contained the keywords as follows: decision making, information management, risk management, risk assessment, sales, data mining etc. The second biggest cluster (green cluster) contained such issues as follows: financial crisis, bank, business model, regulation, z-score, efficiency, performance etc. The third biggest cluster (blue cluster) focused on banking, financial market, business cycle, lending behaviour, business model etc. The fourth-biggest cluster (the yellow one) merged the paper which contained the keywords as follows: sales, electronic commerce, competition, e-banking, internet banking, mobile banking etc. Next cluster (purple) located close to the first one (red) and yellow cluster (e-banking) contained such issues as follows: information system, business process, business process management, banking industry etc. They are connected threw the word “information system – information management – process control – electronic commerce”, “finance – design making – risk management – internet” etc. Next two small clusters orange (innovation and competition) and turquoise (commerce and sustainable development). The closer location of the abovementioned cluster to each other proved the stronger their relations. Such tendency allows making a conclusion, that information system, design making, new sales channels (e-banking, mobile banking etc.) and internal processes like planning, business process management becoming a relative part of banking business model. The findings proved that technology, fintech, information management, e-commerce become an important part of banking business models and is becoming increasingly popular in research and investigating by the huge range of the authors (Figure 6) (Appendix 2).

The smallest cluster (brown) focuses only on two keywords: cybernetic and the stock market. Noted, that three clusters brown, orange (innovation and competition) and turquoise (commerce and sustainable development) also located close to each other. This allows making a conclusion, that innovation and competition and sustainable development incoming in the attention of banks and their business models (Figure 7) (Appendix 3).

Thus, at the next stage, with the purpose to do a deep analysis of the co-citations on banking business model in second and third biggest clusters from Figure 5 were analysed in detail. The keywords were chosen as follows: financial crisis, bank, business model, regulation, z-score and banking, financial market, business cycle, lending behaviour, business model. The findings are shown in Figure 8 (Appendix 4). Thus, the findings proved the research hypothesis that the topic of banks and their role in financial in the papers which analysed the business model issues are very popular.

Considering the results, 8 clusters. The biggest was red, green, blue, yellow and purple. In this case, the red cluster contained keywords as follows: decision making, information management, risk management, risk assessment, sales, data mining. Thus, the findings proved the research hypothesis that the topic of banks and

their role in financial in the papers which analysed the business model issues are very popular. At the same time, the most related areas with banking business model were sales, e-commerce, competition Islamic banking, performance, profitability and risk management.

## Conclusion

The results of the analysis proved that the banking business model is a popular direction for investigation which formed in separate scientific school. Besides, the quantity of paper become increased from the 2012 year, that related to the active introduction of digital technologies in the banking business, and a corresponding change in the paradigm and types of business models of bank concerning fintech innovations, the emergence of cryptocurrencies, changes in the regulatory environment. The findings from VOSviewer allow allocating 8 clusters. Three among them have a close relationship. The first biggest cluster merged the keywords as follows: decision making, information management, risk management, risk assessment, sales, data mining etc. The second biggest cluster merged the keywords as follows: financial crisis, bank, business model, regulation, z-score, efficiency, performance etc. The third biggest cluster focused on banking, financial market, business cycle, lending behaviour, business model etc. The fourth-biggest cluster (the yellow one) merged the paper which contained the keywords as follows: sales, electronic commerce, competition, e-banking, internet banking, mobile banking etc. Such tendency allows concluding, that triangle "profitability – risk – soundness" and information technology, finteh, information management and regulation become the important part of the banking business model.

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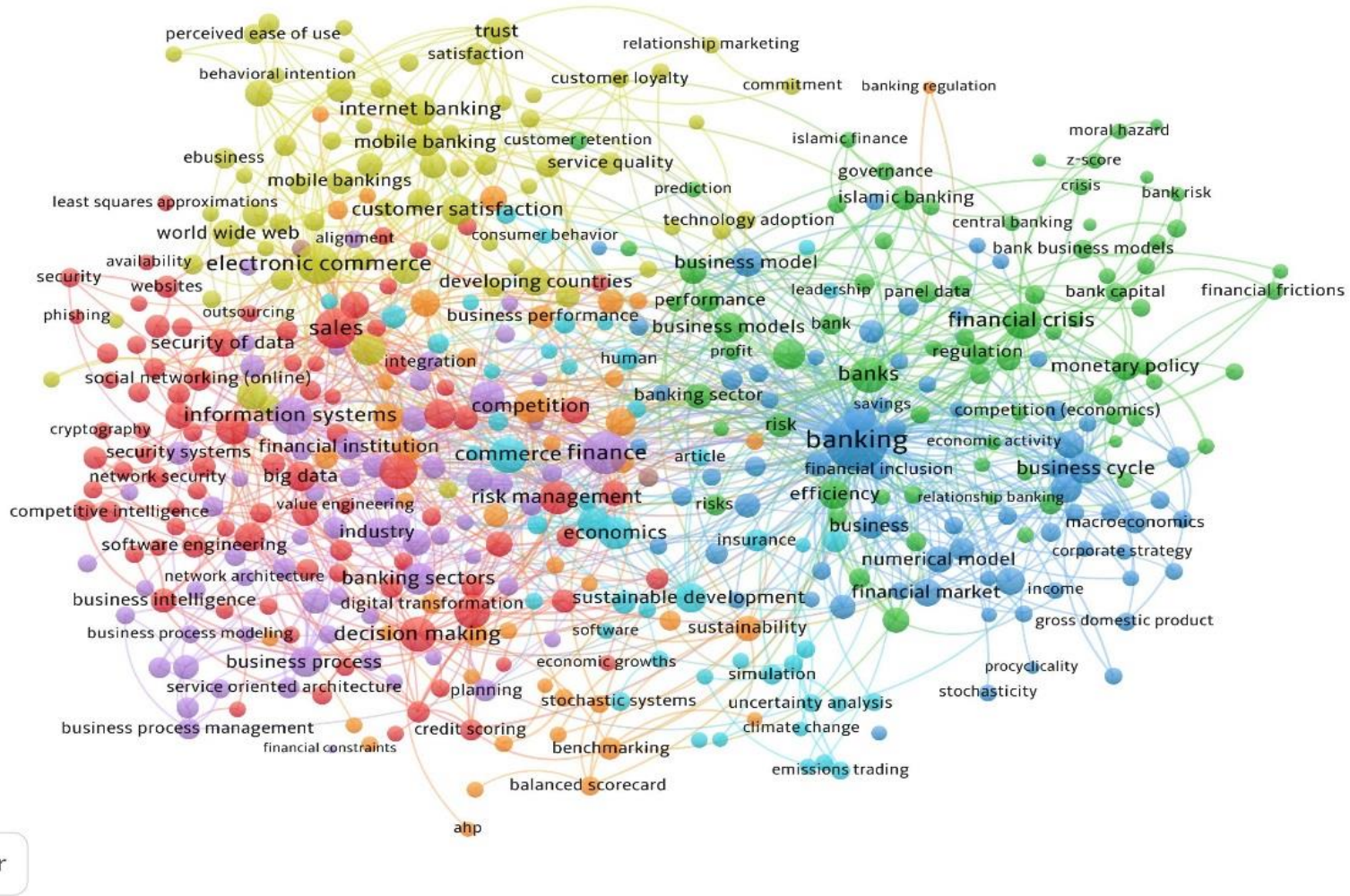
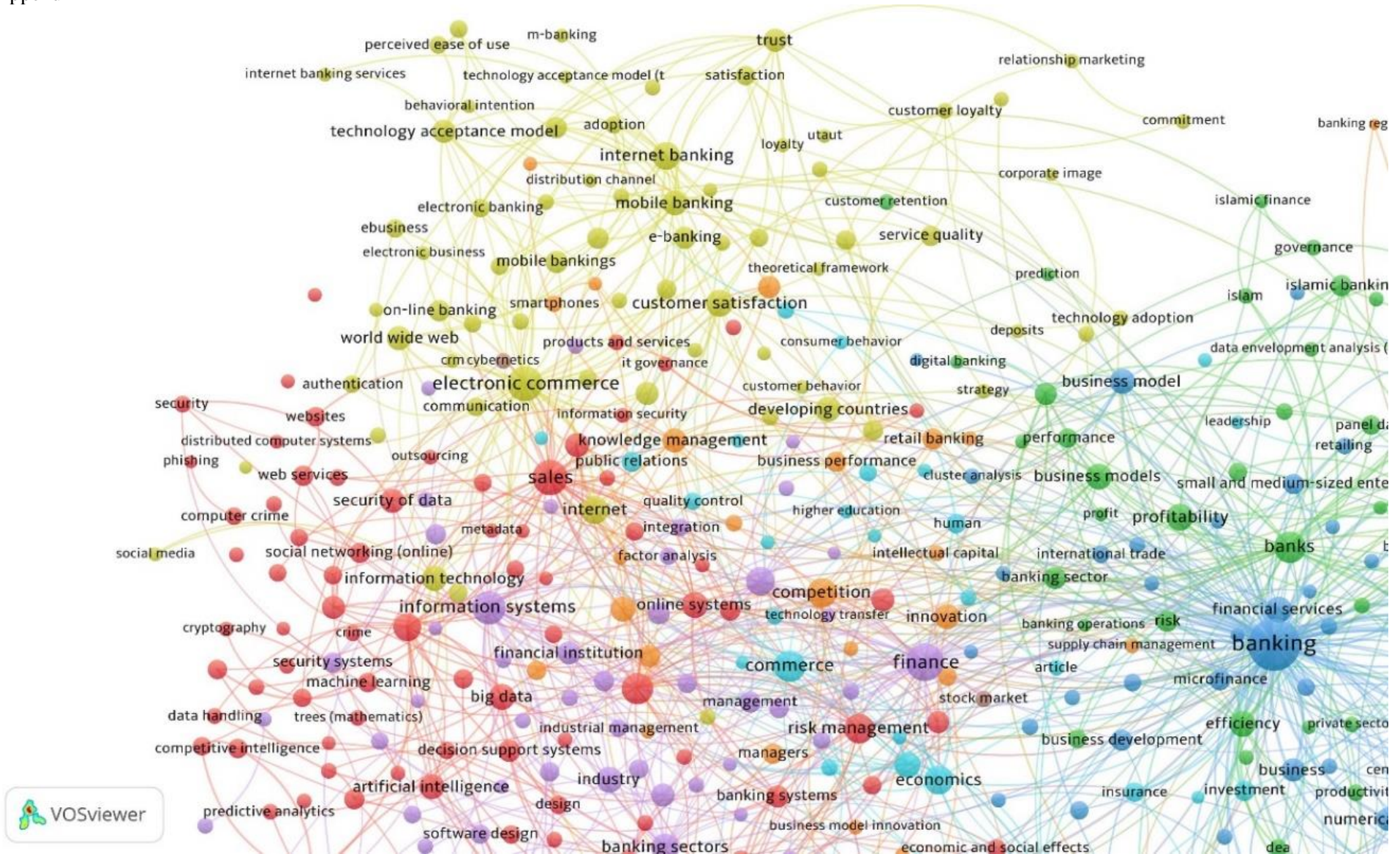


Figure 5. The network visualization of the co-citation of the papers on banking business model

Source: Compiled by the author using the Scopus and WoS database and VOSviewer tool



**Figure 6. The network visualization of the co-citation of the papers on banking business model with close areas**

Source: Compiled by the author using the Scopus and WoS database and VOSviewer tool

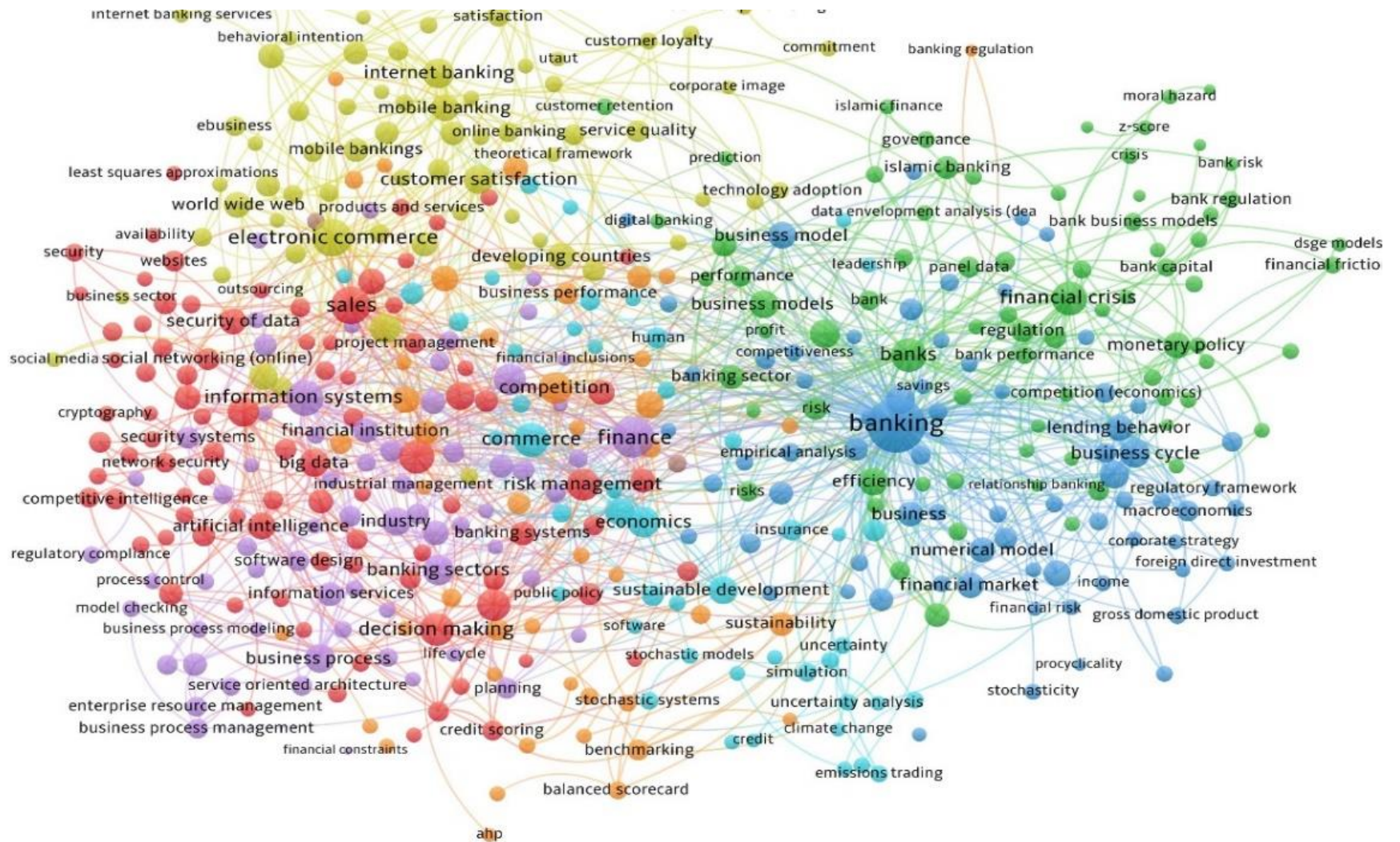


Figure 7. The network visualization of the co-citation of the papers on banking business model with close areas

Sources: compiled by the author using the Scopus and WoS database and VOSviewer tool

Appendix 4

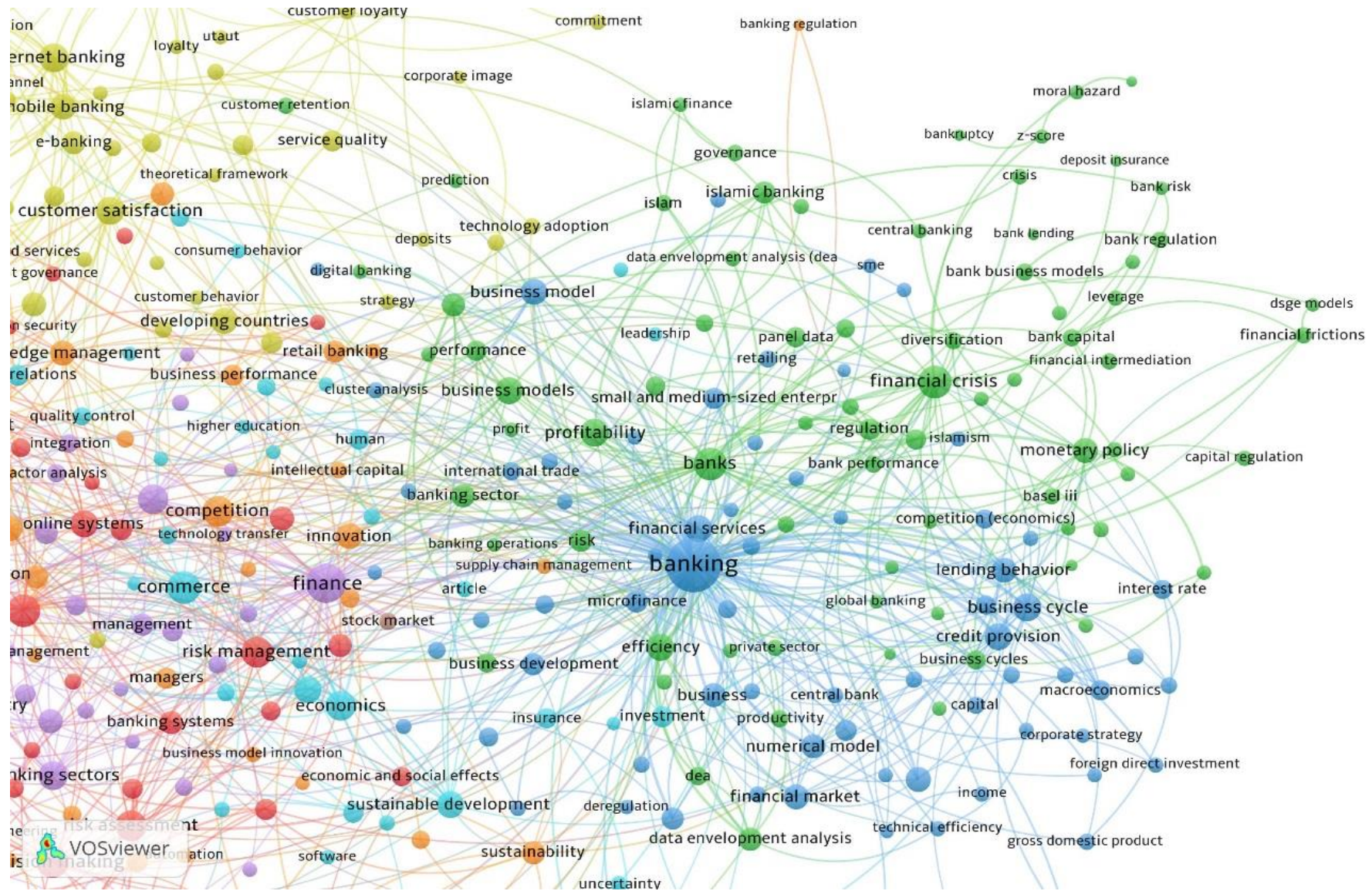


Figure 8. The network visualization of the co-citation of the keywords on blue and green clusters

Sources: compiled by the author using the Scopus and WoS database and VOSviewer tool