

Forensic Accounting Growth: Bibliometric Analysis Perspective

Ag Kaifah Riyard Kiflee¹, Nornajihah Nadia Hasbullah², Shazali
Shaharuddin³

¹Faculty of Business, Economics and Accountancy, Universiti Malaysia Sabah, ^{2,3}Faculty of
Business Management, Universiti Teknologi Mara (UiTM) Melaka, Kampus Bandaraya
Melaka

Email: najihahnadia@uitm.edu.my

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Abstract

'Fraud risk' and fraud have different ontologically. Fraud risk is something that be governed, while fraud risk is a disruptive event that potentially affect the operation. Forensic accounting on the other hand, is socio-professional career who combining accounting and law expertise. The ultimate objective is to safeguard the legal subject property. Forensic accounting may influence legal, economic, political and social. By mixing expertise, forensic accounting has attracted a lot of attention especially from academicians. Therefore, understanding the issues and widening research collaboration is necessarily important to further understanding this topic. Our study objective is to examine the global research trends in forensic accounting area based on publication outputs, co-authorship, affiliated countries, and co-occurrences of author keywords by using bibliometric analysis and VOSviewer. To determine the research trend, a total of 107 articles from 1992 to 2020 were extracted from Scopus database and being analyse. The result has found that the number of publications regarding forensic accounting increased significantly in the last 6 years. The result also suggested that, most of the publication are contributed by United States and Canada. This study also determines the type of forensic accounting such as litigation support, expert witness and fraud investigation.

Keywords: Forensic Accounting, Bibliometric Analysis, Scopus Database, Research Trend

Introduction

Word 'fraud' based on the written record, are practically significant and it is one of the reasons for the development of proper writing and record keeping among the business operation (Basu & Waymire, 2006; Ezzamel, 2012). At usual, most of the fraud literature start with the recitation of an infamous old accounting and corporate scandals (Clikeman, 2009; Cooper et al., 2013) and these infamous introductions will always attract the public attention. Concern on fraud and white-collar crime indirectly affects public confidence not only over to

stock markets, but also to auditors, corporate executives and government as whole (Cooper et al., 2013).

Due to various corporate, social as well as political fraud among government institutions, political representative, financial institutions, NGO's and religious organisations, the legitimacy of such institutions is being questioned (Cooper et al., 2013). In addition, fraud activities also affect one perspective towards economics, political and social life as well as their compliance over to rules and law (Snider, 2000). It is well known that, managers and accountant juggling over their moral law, battling over themselves in order to legalise the manipulation activities made by the responsible parties (Jackal, 1988).

Despite the fact that corruption still occurred around the globe, very little is known why this activity is still happening, who is involved, and how it is happening and the true 'function' of anti-corruption committee. To prevent fraudulent activities, Transparency international (2005); World Bank (2005a,2005b) has worked simultaneously to design an anti-corruption advocate to promote non-direct selling and buying of political influence (Everett et al., 2007). This effort has given a chance of fighting corruption to the accountant by creating institutional barriers, a role that turns an accountant as virtuous actors in fighting corruption (Everett et al., 2007). Lack of study onwards corruption behaviour has worsened the situation, as those who directly involved in this situation much prefer to stay hidden and the investigation always draws public attention towards government faith (Klitgaard, 1988; Everett et al., 2007). As a result, very much is discovered about the corrupt process and even less is much known about the role of accounting in these processes. It is the gap that motivates this study to further investigate about these phenomena.

From the perspective of accounting and auditing study, vast majority of research on fraud activities have been focussed into two areas, which are, individual crime and impact of corporate fraud into capital market behaviour (Cooper et al., 2013). Large part of the fraud studies focusses on the individual wrongdoing, factors, quality and detection (Albrecht et al. 2011; Brody et al., 2012). Through audit procedure, researcher usually investigate the psychology state of the criminal, detection and prevention alternatives which are crucial to the fraud studies (Brazel et al., 2009). Another area that usually focussed by accounting fraud study is the capital market reaction towards corporate fraud from the economic theories or agency theory conflict (Cooper et al., 2013). These two areas are the most common area focussed by the accounting and audit researchers. However, this study will provide a different angle of perspective and questions, which provide new understanding and dimension in fraudulent research area.

Data Mining and Search Approach

Data retrieval was conducted between April 4 to 8, 2022 by using Scopus database. Any articles that containing "Forensic* Accounting*" in their both title and abstract will be extracted separately for analysis purpose. As far as the publication date concern, the oldest articles in forensic accounting were published back in 1992, while the latest articles are published in recent years (2020). Researchers used: (TITLE-ABS ("forensic* accounting*")) AND DOCTYPE (ar) AND PUBYEAR > 1959 AND PUBYEAR < 2021 AND (LIMIT-TO (SRCTYPE , "j"))) as the search query string which resulted in 128 documents available in Scopus. To ensure only empirical articles left to be analyse, additional phrases were added in the query

string and the result found that 21 articles are irrelevant for this study. These types of articles are containing other terms than empirical in their title and abstract such as review, recent, progress, critical and highlight. To double confirm only empirical paper will be analysed, researchers recheck the articles by reading the abstracts and full text. To exclude the irrelevant articles in the next search query, and EID (Scopus unique ID) is added in the search query string.

Study by (Khudzari et al., 2018), discover that the best method to obtain authors output is by referring their author ID (Scopus field code: AU-ID). It is argued that, the author profiles containing of all information that places in one single profile.

While information for single-country publication (SCP) was extract by delimiting the research to specific country by applying field code of AFFILCOUNTRY. The central theme was analysed based on the year, source, authors, affiliation, territory and subject field. Total publications, citations, CiteScore and h-index of bibliometric analysis on the other hand were used for ranking purpose.

This study also examined other sub-theme which related to forensic accounting. Among the sub-theme that found in this study are economic crime, auditing investigation and ethics. Researchers are applying similar search string, with an additional term added to the search string in accordance to their application such as (*economic crime*) or (ethics*). The result then was analysed by comparing with the publication output per year.

It is to note that, there are higher possibility that one application may overlap with another. For example, forensic accounting is likely to overlap with forensic fraud investigation or auditing investigation. Therefore, to minimise the tendency of overlapping, researcher excludes the auditor from the forensic accounting search. As a result, the result generates is more stable. Figure 1 summarise the collection and elimination process of the articles and

Table 1

Provided the search string details that employ in this study.

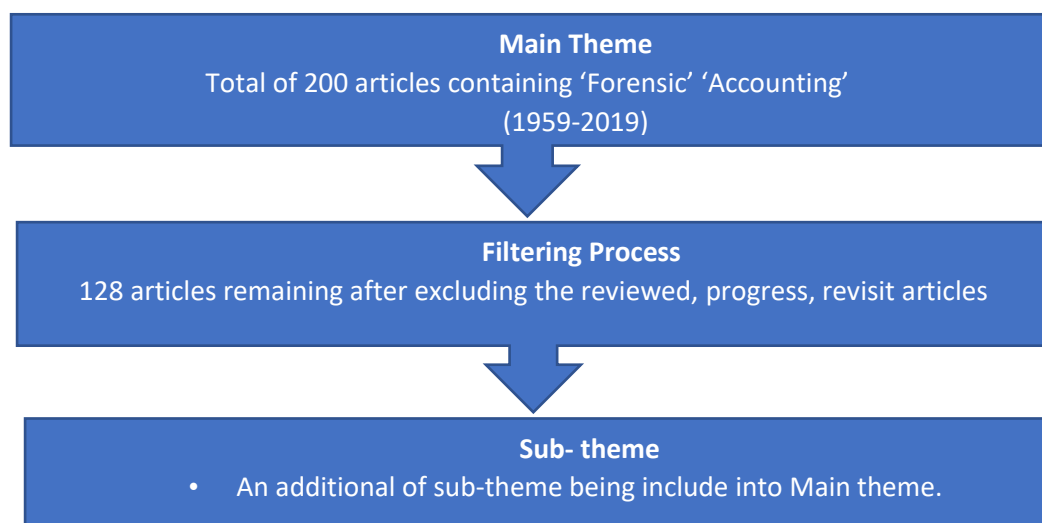


Figure 1

Bibliometric Maps

To visualise the bibliometric maps, all the 200 articles citation, bibliographical and author keywords were exported to VOSviewer (Version 1.6.7, Centre for Science and Technology Studies, Leiden University, Netherlands). Bibliometric maps that were created by VOSviewer are including items. In this study, the countries and author keywords are the item or object of interest. An object of interest or items is usually connected by link between each other (Khudzari et al., 2018). Each link comprises strength which represents by positive numerical value. The higher the value, the stronger the link.

For co-authorship analysis, the link strength between countries represents the total publication that affiliated by the two countries while the total link strength represents the total strength of co-authorship with other countries. Similarly, for co-occurrences analysis, the number of publications is represented through the link strength between the author keywords in which the keywords intercept together.

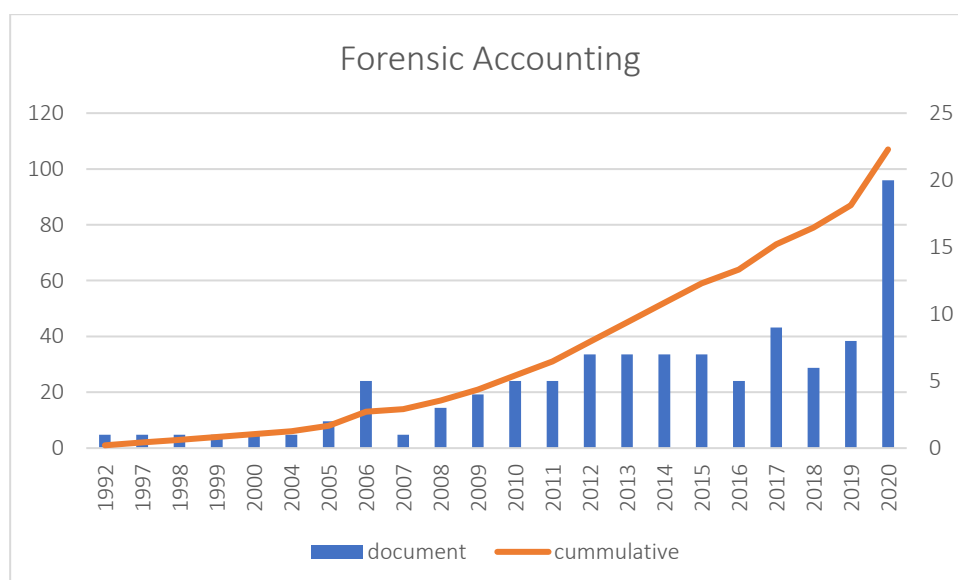


Figure 2

Co-authorship Analysis

Analysis of co-authorship found that 34 countries are affiliated with 217 authors. Affiliated countries are then divided into 5 continentals: Asia, Europe, America, Africa and Oceania.

Co-occurrence Analysis

Analysis of co-occurrences of author keywords found that around 273 keywords are coming from 200 articles. The remaining of 28 articles is excluded from the analysis due to limited author keyword information. To ensure no duplication of authors keywords, synonymic single words and congeneric phrases were analysed before analysed in VOSviewer. Fraud investigations, white-collar crime and fraud crime are some of the examples of congeneric phrases which being re-label as fraud investigation.

Researchers set minimum occurrences of keywords analysis into 3. The reason for this minimum setting is to ensure all the keywords are analysed. To view the average publication year, number of occurrences and link strength of the keywords, researcher opts the overlay visualisation as a mode of review. The colour of keywords represents the average publication years of the articles.

Forensic Accounting Publication

To determine the forensic accounting trends, the search output between the main theme (keyword co-occurrences) are being compared with sub-theme (total publication). Let's say the main search theme are fraudulent activities, in VOSviewer software, all the keywords' occurrences related such as 'fraud', 'crime' and 'fraud triangle' are counted. Researchers also analysed top 5 countries who actively publish in forensic accounting.

Discussions

Forensic Accounting Publication Advancement and Research Interest

A total of 107 articles had been published in the last 28 years (refer figure 2). The earliest articles were published back in 1992 and until late 1997 no publication was identified. Starting from 1997 until 2005, the number of publications for forensic accounting is quite stagnant with a single publication. Based on the trends, it is suggested that, the strong attention on forensic accounting starting from 2005. It is also to note that, the number of publications in relation to forensic accounting has increased significantly starting from 2012 with a double number. This has resulted in an increase in cumulative total publications. Researchers found that in 2020, the number of publications in relation to forensic accounting is at its highest with 20 single publications. Therefore, based on the result, it is expected that the annual publication of forensic accounting will arise. However, this study found that most of the articles are not freely available and users need to pay in order to have direct access to the articles. To increase the likely of the number of citations for the articles, it is advised for the authors to publish their articles in an open access journal.

It is argued that, forensic accounting field is vast and many researchers are actively involved in this area. Analysis showed that, the main focus of forensic accounting is business, management and accounting area. Among other area that focus by forensic accounting are economics, econometrics and finance (32), Social Science (57) and Computer Science (19). Forensic accounting arguably is a multidisciplinary area whereby some of the articles were published in art and humanities area and psychology area.

Language Selection

The study also found that, there are 4 languages that commonly employed by the authors. However, most of the articles were written in English (106) and followed by French language (4). Another two languages, German and Slovenian were published in one single article. To enhance the opportunity for foreign paper to publish in Scopus, the article's title and abstract should be written in English.

Succesful Journals

Analysis of top 15 most productive journals found that, there are several publishers who actively publish in forensic accounting field. Among top publishers are American Accounting Association and emerald. The rest of publishers are Allied Business Academics, Canadian Academic Accounting Association, Elsevier and Taylor & Francis.

Journal Issues in Accounting are the most productive journal with 15 articles, covering about 27% from the total publication of forensic accounting issues. The next most productive journal is the Journal of the International Academic for Case Studies (9, 16%), Canadian Accounting Perspectives (4, 7%) and followed by the Journal of Accounting Education (4, 7%). Accounting Research Journal and Managerial Auditing Journal may lack in publications number, but their citations number is much higher when being compared with the first ranked journal with total citation of 24 and 22 times respectively. This indicated that, the quality of the paper produced by these journals is good and suitable with the audience need.

Based on the CiteScore 2020, only two journals who have scored more than 2. The highest CiteScore belong to Journal of Accounting Education (4.7) and the lowest CiteScore journal belong to ATA Journal of Legal Research. It is to note that, despite being ranked second from top 15 journals, Journal of the International Academy for Case Studies has scored the least number of citations and CiteScore. This may be due to the inability of the journal to reach out to their target audience.

Moreover, study also discovered that CiteScore is one of the criteria that the authors may look before deciding which journal they will publish their significant work. CiteScore is similar with Clarivate Analytics Impact Factors whereby both of this scoring system used citations number from the Scopus database to measure journal impact. However, CiteScore alone cannot be taken as the main indicator when measuring the journal quality (Khudzari et al., 2018). The ability of the journal to deliver to the right audience and their impact towards the respective field also needs to be considered when selecting your potential journal for publication. This study also listed 15 potential journals that can be considered by a future researcher to publish their work.

Table 1

Rank	Journal	Number of publications	%	Number of citations	Cite score 2020	The Cited Article	Most Article	Times cited	Publisher
1.	Issues in Accounting Education	15	27	81	1.7	Electronic discovery (Ediscovery): Performing the early stages of the enron investigation		2	American Accounting Association

Ran k	Journal	Number of publicatio ns	%	Numb er of citatio ns	Cite scor e 202 0	The Cited Article	Most Article	Tim es cite d	Publisher
2.	Journal of the International Academy for Case Studies	9	16	0	0	The hack attack at winter's publishing	tale	0	Allied Business Academies
3.	Canadian Accounting Perspectives	4	7	19	0	CAP forum on forensic accounting in the post-enron world audit committees and misappropriation of assets: Publicly held companies in the United States [Les comités de vérification et le détournement de biens: les sociétés ouvertes aux États-Unis]		11	Cannadian Academic Accounting Association
4.	Journal of Accounting Education	4	7	15	4.7	Inattentional blindness and its relevance to teaching forensic accounting and auditing		5	Elsevier
5.	Journal of Financial Crime	4	7	18	1.1	An innovative approach in combating economic crime using forensic accounting techniques		8	Emerald

Ran k	Journal	Number of publicatio ns	%	Numb er of citatio ns	Cite scor e 202 0	The Cited Article	Most Cited Article	Tim es cite d	Publisher
6.	Accounting Research Journal	3	5	24	1.5	A tale of two triangles: Comparing the fraud triangle with criminology's crime triangle		15	Emerald
7.	Managerial Auditing Journal	3	5	22	3.1	Relevance of big data to forensic accounting practice and education		16	Emerald
8.	Emerald Emerging Markets Case Studies	2	4	6	0.1	Fraud at the Central Bank of Tanzania (A)		5	Emerald
9.	Historical Methods	2	4	18	2.1	Colonial New Jersey's paper money regime, 1709-75: A forensic accounting reconstruction of the data		13	Taylor & Francis
10.	International Business Management	2	4	6	1.5	Contribution of forensic accounting to corporate governance: An exploratory study of an asian country		6	Medwell
11.	International Journal of Financial Research	2	4	6	0.4	The personality factor of conscientiousness on skills requirement		4	Sciedu Press

Rank	Journal	Number of publications	%	Number of citations	Cite score 2020	The Cited Article	Most Article	Times cited	Publisher
						and fraud risk assessment performance			
12.	Journal of Applied Business Research	2	4	3	0.9	A fraud audit: Do you need one?		2	Western Academic Publishers
13.	Polish Journal of Management Studies	2	4	6	3.8	Fraud detection by testing the conformity to Benford's law in the case of wholesale enterprises [Wykrywanie nadużyć finansowych przez badanie zgodności z prawem Benforda w przypadku przedsiębiorstw w handlu hurtowego]		5	Czestochowa University of Technology
14.	ATA Journal of Legal Tax Research	1	2	0	0.0	Editorial staff of journal of forensic accounting research		0	American Accounting Association
15.	Academy of Accounting and Financial Studies Journal	1	2	1	1.4	The role of forensic accounting and its relationship with taxation system in Iraq		1	Allied Business Academies

Successful Countries, Active Institutions and International Collaboration

Table 4 listed the 11 most active countries who actively publish in forensic accounting field. Based on the analysis, more than half (>50%) publication of forensic accounting are coming from the United States which indicated that, United States is the main player who contributes to Forensic accounting research. With 48 articles in total, United States is the leading country, covering about 51% from the global publication of forensic accounting research. Canada is ranked at the second place with total publication of 12 (13%). The analysis found that, the Total Publication (Tpi) for University of North Florida is similar with Universiti Utara Malaysia who sitting at the third ranked from total publication. This result has shown that, most of the publication in the United States are contributing by other universities. In Malaysia, the most prolific university is Universiti Utara Malaysia who contributes more than 80% of the total Malaysian publication.

From the analysis of 11 countries, it is discovered that United States (94%), Canada (100%), Malaysia (57%) and Australia (60%) are having more than half of their publication as single country publication (SCP). This suggested a strong internal publication from these countries. While United Kingdom is found as the least SCP country whereby out of 4 publications in forensic research, only one study is coming from United Kingdom and the rest are affiliated with other countries. Based on the analysis, higher SCP is contributed due to the lower number of publications coming from the countries itself. Arguably, to enhance researcher networking abilities and encourage knowledge exchange, researchers are urged to perform international collaboration. Malaysia arguably is practicing effective international collaboration whereby almost half of its publications are international collaboration which is not only beneficial for the researcher skill and knowledge, but also for the university ranking. This is because, postgraduate researcher tends to opt for university ranking in their admission selection.

The diversion of countries or territories is shown in the figure 4. Arguably, the closer the two countries located between each other in the VOSviewer, the stronger their relationship, which is represented by thickness of line. Based on the analysis, Asia (13) is dominating as the highest countries per region, followed by Europe (9), America (5), Africa (3) and Oceania (1). Co-authorship result showed that the United States is the most affiliated countries with 5 links with 13 times of co-authorship. The list is followed by Canada, Australia, Jordan, Malaysia and the United Kingdom. The result also showed that most of the listed countries are having international collaborative publications with at least 2 countries. Based on the co-authorship analysis, only Nigeria, Indonesia, India and Iraq who have not been associated with other country for publication purpose.

Usually, the degree of international collaboration is contributed by several factors. Among the top factor considers by international researchers are the diversity of the research associate, percentage of postgraduate's students or visiting professors and the organisation research facility (funding). While at the same time, it is important to ensure the stability of research policy to ensure the sustainability of the international collaboration itself.

Table 2

Rank	Country	TPc	%	TPI	Num. publication	Single country publication (SCP)	%
1.	United States	48	51	University of North Florida	5	45	94
2.	Canada	12	13	University of Victoria	2	12	100
3.	Malaysia	7	7	Universiti Utara Malaysia	5	4	57
4.	Australia	5	5	Queensland University of Technology	1	3	60
5.	Jordan	4	4	Hashemite University	2	2	50
6.	Nigeria	4	4	Nigerian College of Accountancy	1	4	100
7.	South Africa	4	4	Stellenbosch University	1	3	75
8.	United Kingdom	4	4	Anglia Ruskin University	1	1	40
9.	Indonesia	3	3	Universitas Sumatera Utara	1	3	100
10.	India	2	2	Geeta Institute of Management and Technology	1	2	100
11.	Iraq	2	2	University of Baghdad	1	2	100

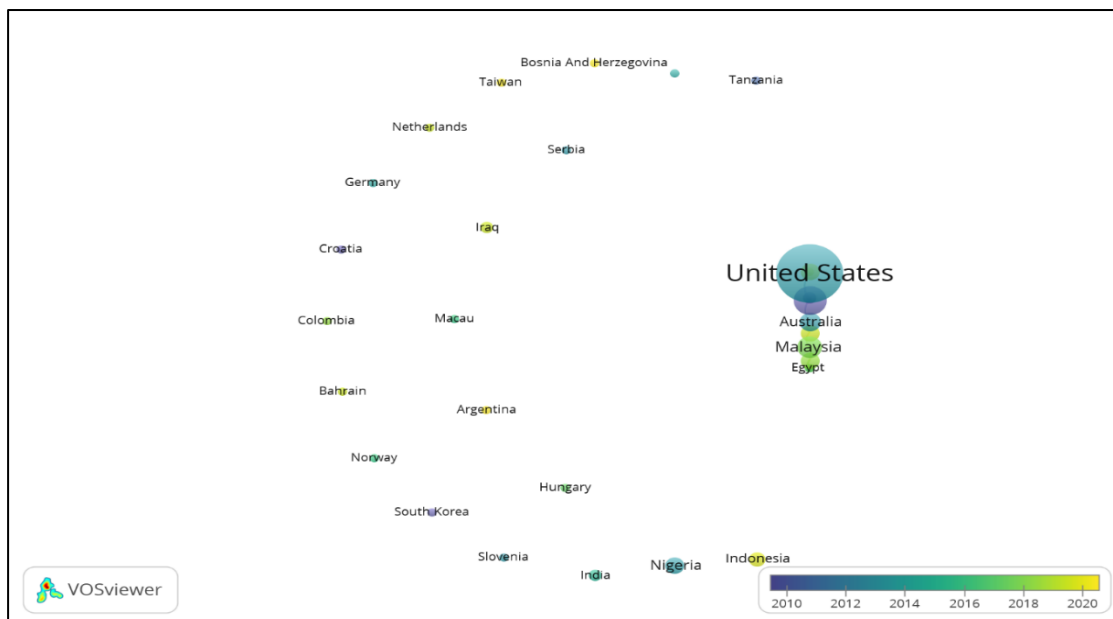


Figure 3

Active Authors

Table 2 lists the top 15 prolific authors in forensic accounting, which affiliated with few countries which such as United States, Canada, Jordan and Australia. Most of the authors are coming from the United States (9 authors), followed by Canada (1 author), Jordan (1 author), and Australia (1 author). The first publication was determined between 2000-2006 whereby 6 authors are ranked as 1st authors, 4 as the co-authors and the rest as the 3rd authors. To determine the author's position, usually the corresponding authors will act as the first author and the last author usually belong to supervisory role or non-academic writers. Affiliation history showed that most of the forensic accounting articles are related to business, economics and accountancy.

With total publications of 3 and h-index of 3, Grubb Farley W. from the United States is the leading authors is forensic accounting. With total citations of 12, Huber Wm Dennis is the second most prolific authors in forensic accounting with total publications of 3 and h-index of 2. None of the top 15 authors are coming from similar institutions which indicating the interest towards this field is growing. However, it is to note that, most of the top leading authors are coming from the United States which demonstrates that most of the top accounting fraud are originally coming from the country (Enron, WorldCom and Tyco).

In addition, it has been observed that, an author only can be appeared in both tables (Table 1 and Table 2) if the authors have published prolific articles in the field. This indicated that, the authors are talented to produce not single quality articles but also multiple quality articles which relevant for the field.

Table 3

Ra nk	Autho rs	Ran k Auth ors	Scopus Author Id	Years Of 1st Public ation	Total Publica tions	H- Ind ex	Total Citati ons	Current Affiliation	Coun try
1.	Grubb & Farley	1	3561968 8400	2015	3	3	27	University of Delaware, Newark, United States	US
2.	Huber & Denni s	2	5562474 1500	2013	3	2	12	Nova Southeastern University, Fort Lauderdale, United States	US
3.	Osbor n & John	1	3611812 5600	2009	3	0	0	The California State University, Long Beach, United States	US
4.	Rezae e & Zabih ollah	1	6603153 872	1992	3	2	31	University of Memphis, Memphis, United States	US
5.	Slater & Rober t	2	5666939 6000	2012	3	0	0	University of North Florida, Jacksonville, United States	US
6.	Alshur afat & Hashe m	2	5721475 1576	2020	2	2	15	Hashemite University, Zarqa, Jordan	Jordan
7.	Capla n & Denni s	2	7103249 889	2014	2	2	6	State University of New York Albany, Albany, United States	US
8.	Durts chi & Cindy	3	2522964 9600	2010	2	2	39	DePaul University, Chicago, United States	US
9.	Dutta & Saura v	1	5541581 2000	2014	2	2	6	Curtin University, Perth, Australia	Austr alia
10.	Infant e & Susie	2	5666962 1700	2014	2	0	0	Nil	Nil

Rank	Authors	Rank Authors	Scopus Author Id	Years Of Publication	Total Publications	H-Index	Total Citations	Current Affiliation	Country
11.	Lawrence & Thomas	1	7101821328	1998	2	2	344	University of Oxford, Business School, Oxford, United Kingdom	UK
12.	Marci nko & David	3	24352482600	2014	2	2	6	State University of New York Albany, Albany, United States	US
13.	Rosen	1	15081107200	2006	2	2	5	York University, Toronto, Canada	Canada
14.	Shea & Vincent	1	52164496400	2012	2	0	0	St. John's University Queens Campus, New York, United States	US
15.	Tschkert & Norbert	2	54411381200	2017	2	2	8	Salem State University, Salem, United States	US

Top Pick Keywords

Analysis on forensic accounting keywords has found 273 related keywords. Among the keywords, 44 keywords were used twice and 18 keywords were used thrice. The researchers decide to relabel synonymous single words and congeneric phrases to ensure no double keywords count. As a result, 65 keywords met the threshold of minimum 5 for mapping in VOSviewer.

Keywords and Constructs Analysis

Study showed that 'forensic accounting' was the most popular keywords among the forensic researcher with 38 occurrences and 146 links to other keywords (refer fig. 5). Analysis also showed a variety of terms that were employed such as 'fraud' (18 occurrences, 73 links), 'auditing' (6 occurrences, 27 links) and 'governance' (4 occurrences, 21 links). in addition, forensic accounting also links with other keywords such as 'data cloning', 'risk management' and 'accounting curriculum'.

Researchers also noticed several attributes that frequently utilised by forensic accounting researchers. Among the frequent term to represent forensic accounting was 'forensic investigation' (2 occurrences), 'financial fraud' (2 occurrences), and 'fraud

examination' (3 occurrences). In addition, forensic accounting also associated with other field such as 'local government' (1), 'experiential learning' (2) and 'balance scorecard' (1).

Likewise, there are several terms that were utilised by the forensic researcher which referring to fraud. Among the terms were 'internal control' (3), 'fraud triangle' (4), 'criminal lawsuits' (1) and 'financial fraud' (2).

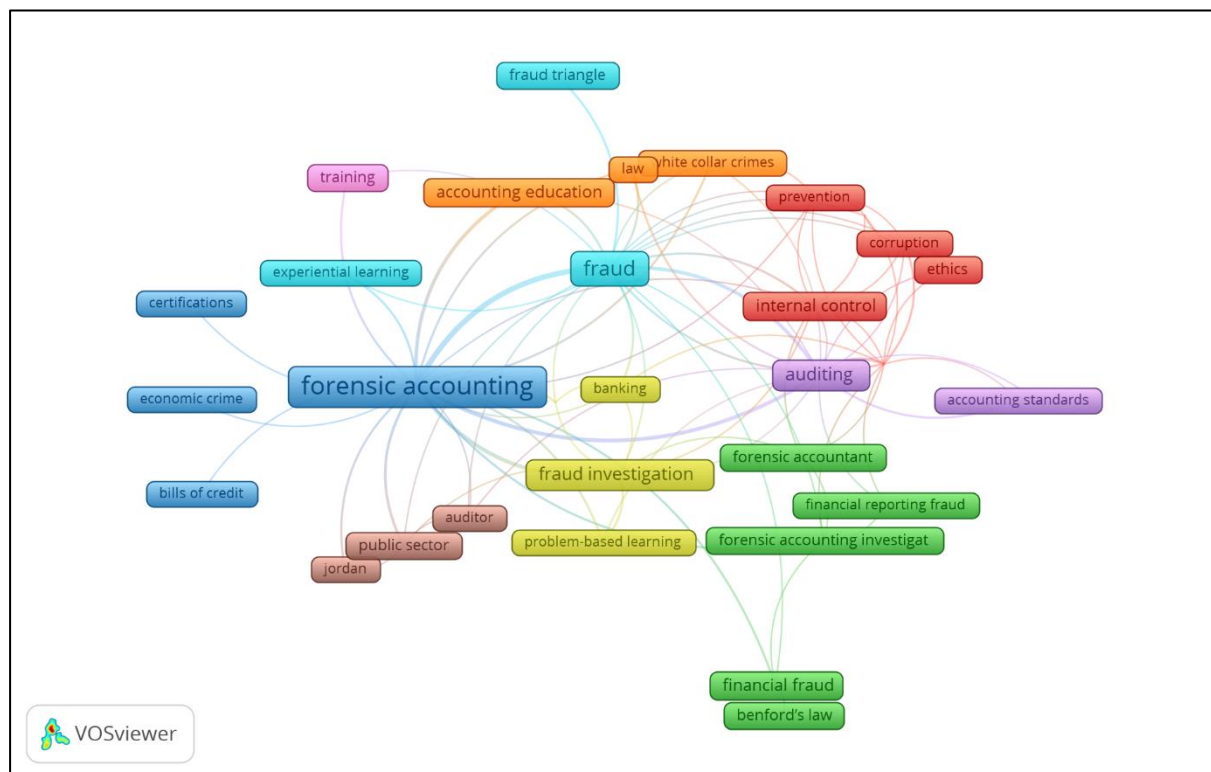


Figure 4

Area of Interest-types of Forensic Accounting

Fraudulent activity by irresponsible party not affect the company and investors but at the same time, this action also affects employees, credit institutions, audit company and government as whole. Notebooks, invoices, balance sheets are components that can be easily manipulated for malicious self-benefit. Phares cooking the book are term that usually being employed when managers purposely change the numbers and sales according to their wish. Only an accountant and auditor can determine which point should be taking into consideration when doing the audit work (Akyel, 2012).

Forensic Accounting

The need for reliable information has turned the fraud investigation to be as important as comprehensive financial statements and accounting knowledge (Akyel, 2012). In the United States, a new career has emerged where the main function of the position is to investigate accounting fraud. However, it is only until now the career been legally recognised by the government bodies. The word 'forensic' means 'judicial' while 'forensic accounting' is referring to the accountant who involved in the field of accounting and law. The main function of the forensic accountant is to assist a fraud investigation by combining their skill in investigating the forensic issues (Akyel, 2012).

The term 'forensic accounting' is refers to CPA (Certified Public Accountants) which their main function is to provide an expert opinion (analysis, examination, review, audit and inquiry) in order to reach the truth of the situation (Crumbley, 1995; Akyel, 2012). Forensic accountant is responsible to assist the lawyers by providing litigation support especially in relation to accounting and other debatable issues.

Among the job scope of forensic accountant is to prevent and expose the fraud, identified the occupational and financial statement fraud and to assist in any matter related to the law court (Akyel, 2012). In other words, forensic accounting can be defined as the application of the relationship from the law perspective especially in relation to financial and business issues (Peterson and Reider, 2001).

Litigation Support Consulting

Litigation support consulting can be described as an expert support given to lawyers as well as non-lawyers during the juridical opposition or giving an opinion expert regarding the accounting issues. Following are forensic accounting functions (Ozkol, 2005).

1. To collect the necessary documents to support or refute a claim,
2. To revise related documents to make an early examination of the case and the determine the weak point,
3. Assist in interrogating the witnesses and to list the questions regarding financial evidence,
4. To assist in revising the statements and joining witness questioning for preparing the supplemental questions,
5. To examine the opposite expert reports in order to identify its strong and weak points,
6. To assist in meeting held to reach agreement,
7. listen the opposing part testimony and to be present during the trial and to be used for cross examination.

Expert Witnessing

As United States and Canada were pressing for new litigation requirement, the need for accounting experts in one accounting case is crucial. Prior hearing the expert opinion, the expert itself is required by the court to be objectives and equitable. Before one are accepting as an expert, there are various qualifications to be considered apart from education and affiliation (Akyel, 2012).

The need for expert witness emerges when the lack of an accounting expert arises. Forensic accountant may be appointed to design economic prospects, prepare tax analysis, refute the opposing party statements, explain the investigated issues or to obtain opposite party statements.

The role of forensic accountant as the expert witness are listed below:

1. Conduct sufficient data collection regarding the case,
2. Reaching an opinion by utilising the data
3. Summarising the analysis for court purpose

Expert opinion is become more significant during the litigation period and their role becoming more crucial as it getting closer to the closing trial (Lawrence, 1998). This is because, the expert opinion usually will be presented at the end of the trial process in order to

influence the court decision. Forensic accounting can be distinguished as an independent party; however, they're still legally binding with the current litigation system. As an expert witness, the role of the forensic accountant is to ensure both of the opinion are being listened fairly (Lawrence, 1998). Therefore, during the selection period, only certain individual will be chosen based on their skill to clarify the information to the courts.

Fraud Investigation (Investigative accounting)

Among the factor who contributed to business fraud is the advancement of technology, manipulation of accounting knowledge, globalisation of economy, and enormous daily business transaction that may lead to complicating situation (Akyel, 2012). These situations have led to the urgent extensive research. Arguably, occupational fraud and abuse of trust due to accounting fraud have caused billion of dollar losses. White collar crime (WCC) in the other way around is an illegal conduct which characterise by deceit, concealment, violation of trust and application of threat not either by physical force or violence (Akyel, 2012). An organisational who focusses on examining the occupational fraud and abuse type of crime is known as Association of Certified Fraud Examiners (ACFE). This organisation examines the type of crime who personally enrich one life by purposely misuse or manipulate employee resources of assets. This type of crime has contributed to the total loss of \$600 billion alone in the United States (Christiansen et al., 2005). Therefore, the introduction of forensic accounting and auditing is an important event that will improve the current situation.

Notably, material misstatement by a joint stock company may not have significant impact of financial position of the company, however, it is significantly impaired the company reputation (Akyel, 2012). Among the popular accounting scandal are Enron, Parmalat, WorldCom and Tyco International.

Listed below are type of fraud manipulations that occurred:

1. White collar crime,
2. Financial misstatement by top management
3. Investment fraud
4. Bribe and commercial commissions
5. Manipulation in banking transaction
6. Electronic funds transfer fraud
7. Credit card fraud
8. System error fraud
9. Internet scam

Based on the types of fraud listed above, it is obvious that, the challenges that may face by the future accountant and auditor are increasing notably. Therefore, the need for a forensic accountant who has direct knowledge on subject matter is greatly needed (Ozkol, 2005).

Limitations of the Study

To search for the keywords, researchers limit themselves to search only for "forensic* accounting*" in the titles and abstracts of the articles. As a result, the search may not cover all forensic accounting study that available on Scopus. This may happen as different researchers may prefer to use a different term to differentiate their study from others. some

of the examples are 'forensic accountant', 'white collar crime' and 'fraud triangle'. Analysis of co-occurrences in VOSviewer is also not covering all the databases such as WOS, Jstor, Science Direct, and ERIC which affect the result outcome.

It is recommended for future studies to include outputs from multiple databases such as Scopus and Web of Science. This is because, in some databases, the features are more advance. For example, a feature called 'hot paper' is only available at Web of Science. This features function by recognised paper that receives significant and rapid citations from users. This will tell the database that the paper is 'in trend' and will be placed on the homepage of the database. By doing this, the citation for the paper will increase as the readers are notice of the paper. Therefore, conducting bibliometric analysis by using multiple databases are something that may look forward by future researcher to create more comprehensive study.

Conclusion

This study provided forensic accounting trend analysis based on 200 articles that available in Scopus database. in the last 15 years, research on forensic accounting has developed significantly and researchers anticipated that it will continue to arise in the upcoming years. Researchers have discovered that institutions in the United States and Canada are among the active publishing group as well as having strong international collaboration. This is indirectly open an opportunity for the other researcher in different countries to join these two countries to increase their publications. This study also has discussed multiple type of forensic accounting. Among the types of forensic accounting are litigation support consulting, expert witness and fraud investigation. Different type of forensic accounting has a different contribution towards the investigation of forensic accounting. This has opened a new opportunity for future research in forensic accounting to be more comprehensive.

References

- Akyel, N. (2012). Forensic Accounting Training: A proposal for Turkey', *Procedia - Social and Behavioral Sciences*, 55, 77–86.
- Albrecht, W. S., Albrecht, C. C., Albrecht, C. O., & Zimbelman, M. F. (2011). *Fraud examination*. Mason, OH: South-Western.
- Basu, S., & Waymire, G. B. (2006). Recordkeeping and human evolution. *Accounting Horizons*, 20(3), 201–229.
- Brazel, J., Jones, K., & Zimbelman, M. F. (2009). Using nonfinancial measures to assess fraud risk. *Journal of Accounting Research*, 47, 1135–1166.
- Brody, R. G., Melendy, S. R., & Perri, F. S. (2012). Commentary from the American Accounting Association's 2011 annual meeting panel on emerging issues in fraud research. *Accounting Horizons*, 26(3), 513–531.
- Clikeman, P. M. (2009). *Called to account: Fourteen financial frauds that shaped the American accounting profession*. New York, NY: Routledge.
- Cooper, D. J., Dacin, T., and Palmer, D. (2013). Fraud in accounting, organizations and society: Extending the boundaries of research, *Accounting, Organizations and Society*, 38(6–7), 440–457.
- Crumbley, D. L. (1995). Forensic accountants appearing in the literature, *New Accountants*, 10(7).
- Everett, J., Neu, D., and Rahaman, A. S. (2007). Accounting and the global fight against corruption, *Accounting, Organizations and Society*, 32(6), 513–542.

- Ezzamel, M. (2012). *Accounting and order*. London: Routledge.
- Jackal, R. (1988). *Moral mazes*. Oxford: Oxford University Press.
- Klitgaard, R. E. (1988). *Controlling corruption*. Berkeley and Los Angeles: University of California Press.
- Lawrence, B. T. (1998). Examining resources in an occupational community: reputation in Canadian forensic accounting, *Human Relation*, 51 (9), 1103-1131.
- Ozkol, A. E. (2005). Bilirgisilik vs Adli Muhasebe Muhasebe Bilim Dunyasi Dergisi, 7, 69-80.
- Peterson, B. K., Ve Reider, B. P. (2001). An Examination of Forensic accounting courses: content and learning activities. *Journal of Forensic Accounting*, 2, 25-42.
- Snider, L. (2000). The sociology of corporate crime: An obituary: (Or whose knowledge claims have legs?). *Theoretical Criminology*, 4, 169–206.
- Transparency International. (2005). *Corruption perceptions index 2005*. Berlin: Transparency International. <www.transparency.org>.
- World Bank. (2005a). *Fraud and corruption*. <web.worldbank.org>.
- World Bank. (2005b). *Anticorruption*. <web.worldbank.org>.