

A Work Project presented as part of the requirements for the Award of a Master Degree in
Management from the NOVA – School of Business and Economics.

ACCOUNTING FRAUD: A SYSTEMATIC
LITERATURE REVIEW

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A Project carried out on the Master in Management Program, under the supervision of:

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4th JANUARY 2019

Accounting Fraud: A Systematic Literature Review

Abstract

The purpose of this study is to investigate the characteristics of accounting fraud research through the analysis of academic literature published in six of the most renowned accounting journals between 2000 and 2017. Through a systematic literature review, a sample of 35 articles was identified. These articles were then analysed using the following variables: year of publication, authorship, author's gender, affiliated university, affiliated country, research method, subject of analysis, topic and theoretical framework. These results intend to contribute to the future development and evolution of the accounting fraud topic and guide researchers in designing their future research.

Keywords: systematic literature review, accounting fraud, financial statement fraud, fraudulent financial reporting

1. Introduction

High profile accounting scandals that came to light in the last several years, such as Enron, WorldCom, Tyco, Olympus, Tesco, Satyam, and Toshiba, gained substantial attention from the members of the public, press, regulators, investors and the financial community (Rezaee, 2005). Associated with it, there was a rise in accounting fraud awareness and significant legislative and regulatory changes (Erickson et al., 2006). The COSO's report on U.S. public companies accounted for an 18% increase in the number of alleged fraud cases between 1998-2007 compared to 1987-1997 as well as, a total misstatement or misappropriation of nearly \$400 million per case (Beasley et al., 2010). Financial statement fraud not only has severe consequences for organisations but also for its employees and various stakeholders. In addition,

there are indirect implications for market participants due to loss of confidence on financial statements and financial markets which consequently reduces the efficiency of capital markets and increases risk premiums (Perols and Lougee, 2011).

At the same time, there has been a considerable amount of academic research related to accounting fraud (Hogan et al., 2008). Then, the aim of this study is to characterise existing literature published on the topic of Accounting Fraud. For that purpose, a systematic literature review was used as the research methodology. This methodology follows a rigorous process to identify and select the most significant literary contributions in this research area. In this study, 35 articles published in the most renowned accounting journals between 2000 and 2017 were examined. Analyses were conducted on key bibliographic and methodological variables and subsequently, associations between these variables were established. These results intend to contribute to the future development and evolution of the accounting fraud research area.

The structure of this study is as follows: section 2 presents a literature review on the accounting fraud topic. Section 3 details the research methodology adopted. Section 4 discusses the results of all the analysis. Lastly, Section 5 summarises key findings and presents the study's contributions, limitations, and proposals for further research.

2. Literature Review

Financial Reporting

In the International Accounting Standards financial statements are defined as “a structured representation of the financial position and financial performance of an entity” (IAS 1, p. 856). Accordingly, their aim is to provide financial information that is useful for decision-making and to that end, it is crucial that information is fairly presented.

Nonetheless, Levitt (1998) denotes that accounting standards are not meant to be a straitjacket. As not every business structure or transaction can be anticipated, flexibility in accounting is

essential to keep up with innovation. Healy and Wahlen (1999) also emphasise that if financial statements are to accomplish their objective, managers should be allowed to use their judgment. For example, estimates need to be made concerning assets' expected lives and salvage values, obligations for employee benefits, impairment losses, liabilities for warranty costs and uncollectible accounts receivable. Managers are also responsible for choosing the appropriate depreciation method and inventory valuation method.

Earnings Management

Flexibility in accounting, however, also gives managers the opportunity to manage earnings. For Healy and Wahlen (1999, p.368), earnings management “occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers”. Despite its wide acceptance, these definitions focus on management intent which is not directly observable and consequently, difficult to evaluate (Dechow and Skinner, 2000).

Dechow and Skinner (ibid., p. 239) consider that management decisions can be classified under four levels: “Conservative” Accounting, “Neutral” Accounting, “Aggressive” Accounting and “Fraudulent” Accounting. The authors distinctly differentiate fraudulent accounting practices in which there is intent to deceive from those decisions that are consistent with GAAP and that may be considered earnings management depending on management's intentions. However, they also stress that, without clear evidence of intent, earnings management is difficult to distinguish from legitimate judgments and estimates that are required to implement GAAP.

Accounting Fraud

As earnings management can either fall within or outside of GAAP, fraud differs from it as fraudulent accounting is invariably inconsistent with GAAP (Erickson et al., 2006). Beasley et al. (2010, p. 7) define fraudulent financial reporting as “the intentional material misstatement

of financial statements or financial disclosures or the perpetration of an illegal act that has a material direct effect on the financial statements or financial disclosures”. Misstatements in financial statements can result from two factors: error if the underlying actions were unintentional or fraud if they were intentional (ISA 240). Given that, for an action to be considered as fraud the motivation behind it needs to be considered (Brennan and Hennessy, 2001).

The Fraud Triangle

The Fraud Triangle is the main framework concerning fraud and it is inclusively embedded in auditing standards globally (Free, 2015). According to this framework any time that fraud is committed three conditions are present: (1) a pressure or incentive as a motivation to commit fraud; (2) an opportunity to perpetrate fraud; and (3) ability to rationalise or attitude that enables the fraudulent action (ibid.).

In their literature synthesis, Hogan et al. (2008) concluded that there is a significant literature which supports the fraud triangle:

- i. pressures to meet analysts’ forecasts, stock options, compensation incentives, need for financing, rapid growth and poor performance increase the opportunity of financial statement fraud;
- ii. effective corporate governance including audit committee, boards of directors, internal controls and external auditors reduce the likelihood to commit fraud; and
- iii. attitudes and rationalizations related research is limited.

The fraud diamond, developed by Wolfe and Hermanson (2004), is a popular extension of the fraud triangle which includes a fourth element: capability. Even when the other three conditions are present, the authors consider that an individual’s personal traits and abilities including function, intellectual capacity, confidence, ability to coerce others, effective lying and immunity to stress are a key determinant on the occurrence of fraud.

Fraud Schemes

Given the variety of fraud schemes used to commit accounting fraud, it is essential to examine the frequencies and patterns of each one to better understand fraud perpetration and consequently, aid in the development of procedures to prevent potential fraudulent actions (Rezaee, 2005). Beasley et al. (2010) analysed 347 companies involved in SEC fraud investigations between 1998 and 2007. They concluded that improper revenue recognition and asset overstatement were the most used methods in fraudulent misstatements of financial statements whereas understatement of expenses and liabilities occurred less frequently. Improper revenue recognition mainly occurs by creating fictitious revenue transactions or prematurely recording revenues using techniques such as sham sales, conditional sales, premature revenues before all the terms were completed, improper cut off of sales, unauthorised shipments and consignment sales. Overstating assets was accomplished primarily through overvaluing existing assets or capitalizing items that should be considered expenses.

Fraud Perpetrators

Financial statement fraud is in the vast majority of the cases (89%) committed by the chief executive officer (CEO) and/or chief finance officer (CFO) (Beasley et al., 2010).

Not only do CEOs have a high understanding of the internal and external controls of the firm, but they are also in a unique position to both shape and make them inefficient as a way to facilitate their fraudulent practices (Black, 2005). Simultaneously, the CEO can use instruments such as bonuses, stock options, raises and dividends for his own gain (ibid.). The other fraud perpetrators commonly include controllers, chief operation officers, other vice presidents, and lower level personnel as well as, outsiders such as customers, vendors, external auditors and members of the audit committee (Beasley et al., 2010).

Corporate Governance

Research demonstrates that fraud is more likely to happen when combined with a management's monitoring that is not effective by means of a weak corporate governance (Hogan et al., 2008). Firms accused of fraudulently misstating their financial statements are more likely to have fewer outsider members on the board of directors (Farber, 2005; Dechow et al., 1996; Beasley, 1996) and more likely to have a CEO who is also chairman of the board (Farber, 2005; Dechow et al., 1996). Jensen (1993) argues that when outside directors hold a significant number of shares, they have an increased motive to monitor top management. A broader analysis conducted by Beasley (1996) concludes that the likelihood fraud is also influenced by the size of the board and certain outside director characteristics such as the percentage of shares held. It has also been shown that fraud firms are less likely to have an audit committee (Dechow et al., 1996; McMullen, 1996). This is coherent with the notion that financial statements and disclosures' quality can be improved by audit committees due to their capacity to link different groups that participate in the financial reporting process (McMullen, 1996). Farber (2005) also found that these firms have fewer audit committee meetings and fewer financial experts belonging to the audit committee as well as, a smaller percentage of 'Big 4' auditing firms. Contrarily, a later study conducted by Beasley et al. (2010) did not identify meaningful differences between fraud and no-fraud firms regarding the board of director characteristics and the existence of an audit committee.

Auditor's Role

Not only are external auditors in a unique position to detect, and even investigate financial statement fraud, but they also act as deterrents to decrease the opportunities to perpetrate fraud (Hogan et al., 2008). Academic research has explored the extent to which the quality of the audit is affected by the length of the client-auditor relationship. Findings suggest that longer auditor tenure does not decrease earnings quality (Carcello and Nagy, 2004; Myers et al., 2003).

Carcello and Nagy (2004) also found that accounting fraud is more likely to take place during the first three years of the auditor-client relationship. Other factors related to the quality of auditors which have been associated with the likelihood of firms to commit fraud include audit firm size, auditor's level of industry specialization, length of auditor tenure, auditor's experience (Hogan et al., 2008) and time pressure (Braun, 2000).

Incentives, Pressures, and Opportunity

Fraudulent financial reporting is likely to be the result of a strong motive and economic reason to report a more favourable picture of a firm's financial performance than the one which would have been reported if accounting standards were followed (Rezaee, 2005). While economic incentives are the most common, there are other types of motives such as psychotic, egocentric or ideological ones which can have a significant role (ibid.).

An incentive to manipulate earnings, found by Dechow et al. (1996), is wanting to attain financing at low cost and to avoid debt covenant restrictions. This finding is not supported by Beneish (1999a). Instead, the author discovered that managers of companies which overstate earnings are more likely to sell their holdings and convert stock appreciation rights prior to the overstatement's uncovering. Similarly, Summers and Sweeney (1998) concluded that insiders in fraud firms reduce their position in the company's stock by carrying significant selling activity when compared to no-fraud firms. However, these results are not unanimous. Dechow et al. (1996) did not find an association between the likelihood of fraudulent financial reporting and the desire to attain larger earnings-based bonus nor did Erickson et al. (2006) found that association with equity incentives. Also, incentives to commit fraud have been associated with poor performance (Rosner, 2003), pressure to meet analyst expectations (Koh et al., 2008) as well as, with assets misappropriation for personal gain, the desire to increase stocks price and to achieve financial targets (Beasley et al., 2010).

As previously outlined, firms with a weak corporate governance structure are more likely to commit financial statement fraud as it provides greater opportunities to do so (Hogan et al., 2008). In addition, an industry's nature or firm's operations, ineffective monitoring of management, complex or unstable organizational structure and ineffective internal controls are other risk factors, which may increase the opportunities to report fraudulent financial information (ISA 240).

Fraud Indicators

Although fraudulent financial reporting can be uncovered when auditors are suspicious of false accounting or management's lack of clarification concerning transactions and balances, more commonly it is uncovered due to the firm's difficult financial circumstances that may lead to its failure (Brennan and McGrath, 2007). For that reason, academic research has focused on discovering the behavioural characteristics common to fraud firms that may act as indicators for fraud detection and identification.

Bell and Carcello (2000) developed a model which estimates the likelihood of financial statement fraud and which can aid auditors in fraud risk assessment. The significant risk factors identified in their model were a weak control environment, rapid growth, inadequate or inconsistent profitability, management's undue emphasis on meeting earnings forecasts, ownership status (public or private) of the company and managers lying to auditors or being overly evasive.

Another method used for fraud detection is financial ratio analysis. Zainudin and Hasmin's research (2016) led them to conclude that financial leverage, asset composition, profitability and capital turnover are significant predictors of financial statement fraud. A similar research was conducted by Beneish (1999b) to identify a company's potential to manipulate earnings. In his model, the financial ratios considered were day's sales in receivables index, gross margin index, asset quality index, sales growth index and total accruals to total assets. Yet, one of the

ratio analysis' limitations is the subjectivity involved in determining the ratios which are likely indicators of fraud. Traditional analytical reviews, which includes financial ratio analysis, has provided limited success in detecting accounting fraud. In similar studies, including the one conducted by Kaminski et al. (2004), the authors did not identify financial ratios as significant fraud indicators. This adds on the limited usefulness of solely using financial ratios to detect fraudulent financial reporting (Hogan et al., 2008). Nevertheless, the emergence of new technology-based tools, including data-mining software, continuous auditing, and pattern-recognition software, can allow researchers to identify tools which are more efficient and effective at detecting accounting fraud (ibid.).

Consequences

The severe consequences resulting from financial statement fraud are revealed in the COSO Report (Beasley et al., 2010). Fraud cases between 1998 and 2007 had a total misstatement or misappropriation of nearly \$400 million per case (ibid.). Companies also tend to immediately experience significant stock price declines of 16,7% and 7,3% once the announcements of alleged fraud or fraud investigations emerge, respectively. In addition, long-term consequences include bankruptcy (28% of the cases), delisting by national exchanges (47%) and material asset sales (62%) at rates significantly higher than those companies not committing fraud experience (ibid.). Individuals allegedly involved in accounting fraud also suffered harsh consequences. The SEC barred one or more individuals involved from being an officer of a public company in 47% of the cases. Additionally, the majority of the CEOs and CFOs left the company within 2 years of the last fraud related AAER. During that time frame, 21% of the CEOs were indicated for fraud, of those 64% were convicted. As for CFOS, 17% were indicated and of those 75% were convicted. In 65% of the fraud cases, civil fines were imposed, averaging \$12.4 million, while in 43% disgorgements were enforced, with an average of \$18.1 million (ibid.).

Despite the financial and legal consequences, the perpetrators also suffer social consequences. For example, Fich and Shibdasani (2007) found that the reputation of outside directors decreases even if they are not involved in the fraud case. Fraudulent financial reporting is still a concern for the business community and accounting professionals due to its severe threat to the market's confidence in the financial information and the substantial costs associated (Rezaee, 2005). However, despite the consequences and high costs of fraud, the severity of the penalties does not seem to be a sufficient deterrent. Therefore, a deeper understanding of the strong motives that compel individuals to behave illegally is needed (Beasley et al., 2010).

3. Research Methodology

To conduct the present study, the methodological approach applied was a systematic literature review. Systematic literature reviews aim to enhance the knowledge base by collecting knowledge from a variety of studies (Tranfield et al., 2003). As traditional narrative reviews often lack rigor and thoroughness, reviewing the literature in a systematic way helps to adopt a replicable, scientific and transparent research process (Tranfield et al., 2003) and consequently, create confidence in the work (Booth et al., 2016).

This methodology uses a well-defined and reproducible procedure to identify, select and assess studies of a predetermined level of quality relevant for a specific review (Booth et al., 2016).

As such, this method allows the most significant literary contributions to be collected.

Based on the methodology presented by Tranfield et al. (2003), this study was conducted in three stages: planning the review; conducting a review; and reporting and dissemination.

3.1 Planning the review

The main purpose of this stage is to identify the need for a review as well to define the research's scope (Tranfield et al., 2003). The proposal of this systematic literature review is to characterise accounting fraud literature and consequently, contribute to the future development and

evolution of this research area. The research was based on four well-known databases: Scopus, Science Direct, Wiley and EBSCO, which were chosen for being amongst the largest ones and indexing a variety of academic journals.

3.2 Conducting a review

As mentioned, systematic literature reviews use a well-defined and reproducible procedure to identify, select and assess studies (Booth et al., 2016). The restriction of the search for relevant articles was accomplished through criteria for inclusion and exclusion, which weighted the time constraints existent to conduct this review as to limit the number of articles to be included. Given the research's scope, the keywords used to perform the search was: "Accounting Fraud", "Financial Statement Fraud" and "Fraudulent Financial Reporting". An initial selection was conducted in the mentioned databases for the defined search keywords, including only journal articles. The search was carried in September of 2018 and led to an initial identification of 8,808 articles. Then, the search was focused on six academic journals, which were selected by being among the best-ranked accounting journals by the Association of Business Schools (ABS) and having a higher number of articles within the research's scope. Specifically, these journals were: Accounting Horizons; Accounting, Organizations and Society; Auditing: A Journal of Practice and Theory; Contemporary Accounting Research; Critical Perspectives on Accounting; and Journal of Accounting Research. At this stage, 511 articles were identified. Additionally, to meet this research's criteria, articles had to include at least one of the keywords in either the title, keywords or abstract, be written in English and be published between 2000 and 2017. This resulted in the identification of 41 unique articles, excluding conference proceedings, calls for papers and article critiques. For these articles, a more detailed evaluation of the full text was conducted. This resulted in the exclusion of six articles: Gavious (2007), Patterson and Noel (2013), Peecher et al. (2007), Rezaee (2005), Sikka (2001) and Stalebrink and Sacco (2007). While Peecher et al. (2007) was excluded because the identified keyword

was merely contextual, and the article was not related with accounting fraud, the other five articles were excluded as the research methodology followed by the author(s) could not be identified. Ultimately, a total of 35 articles were selected to be included in this review. After the selection was complete, I extracted information contained in the articles regarding the following variables: year of publication, authorship, author's gender, affiliated university, affiliated country, research method, subject of analysis, topic and theoretical framework.

3.3 Reporting and dissemination

In order to achieve the proposal of this systematic literature review, the variables previously mentioned were adequately examined and associated with each other. The output of this analysis is described in the findings section, in which the extracted data is presented in detail.

4. Findings

In order to gain a better understanding of the published literature on accounting fraud, this section reports the results of analyses performed to address the proposal of this systematic literature review. The findings are divided into two sections: variables analysis and associations analysis.

4.1 Variables Analysis

This section reports the analysis conducted for each variable individually. As previously mentioned, the variables considered are: year of publication, authorship, author's gender, affiliated university, affiliated country, research method, subject of analysis, topic and theoretical framework.

For this study, a total of 35 articles were identified. These articles have been published in six different journals: Accounting Horizons (AH); Accounting, Organizations and Society (AOS); Auditing: A Journal of Practice and Theory (AJPT); Contemporary Accounting Research (CAR); Critical Perspectives on Accounting (CPA); and Journal of Accounting Research

(JAR). The number of articles published in each journal is presented in Appendix 1, while a more detailed identification of the articles is evident in Appendix 2.

The majority of the articles were published in AJPT with 13 articles, which constitutes 37% of the universe being considered, followed by CAR that published 7 articles related to accounting fraud, or 20% of the total. CPA was the journal with the lowest contribution, with only 2 articles (6%). As for the other articles under study, both AOS and JAR contributed with 4 articles while AH published 5 articles, which means that the weight per journal is 11% and 14%, respectively.

4.1.1 Year of Publication

Given the criteria used for the selection of articles, the year of publication ranges between 2000 and 2017. Appendix 3 displays the evolution of publications, and Appendix 4 shows in more detail the number of articles published each year by journal. This analysis consists of visualizing the frequency of articles over time in order to identify potential trends.

Apart from the peak of publications reached in 2013 with 7 articles, the number of publications per year fluctuated between zero and four. The years with no articles were 2002, 2007 and 2016. As evident in Appendix 5, during the first half of the time range being considered 14 articles (40%) were release whereas in the second half 21 articles (60%) were published, which represents a 50% increase between periods. This confirms the increasing interest in the number of publications related to accounting fraud. It can also be noted that this seems to be a recurrent area of research as out of the 18 years considered, articles were published in 15 of them. From a journal perspective, AOS, CPA, and JAR have published an equal number of articles in the first and the second halves while CAR was the journal with the most significant difference among periods, having published more articles from 2009 to 2017.

4.1.2 Authorship

The aim of this analysis is to investigate author frequency as well as author collaboration per article. In total, 66 different authors wrote the 35 articles included in this study, which accounts

for 86 authorships. Appendix 6 provides a list of authors and the respective number of articles written. Sixteen authors published more than one article, they represent 42% of the total authorships and 24% of the total number of unique authors. Additionally, these authors contributed to 21 different articles (60% of the total articles). From those 16 authors, Joseph V. Carcello, Tina D. Carpenter, Keith L. Jones, and Richard A. Riley, Jr. wrote 3 articles which is the higher number of contributions per author. All other authors contributed to only one publication. These results suggest that there is a certain degree of recurrence amongst the authors of accounting fraud research. Appendix 7 illustrates the number of authorships by article. From the 35 articles considered, 27 (or 77%) have been written by more than one author. On average, each article was written by 2.5 authors. This means that most articles result from the collaboration of several authors. These results are consistent with the findings of Chan et al. (2009) who studied co-authorship patterns in accounting research and concluded not only that 70% are co-authored articles but also that co-authorship has been increasing over the years.

4.1.3 Gender

This variable illustrates the gender of each of the 86 authorships identified. Appendixes 8 and 9 show this gender distribution. From those, 26 of those are female while 60 are male. This represents 30% and 70% of the total, respectively. Apart from CPA that only has female authorships, all the other five journals have a higher contribution of male authors. The highest percentages are present in JAR and AH, which also surpass the overall 70% of male authorship.

4.1.4 Affiliated University

This variable is analysed by considering the affiliated university of each authorship previously identified. However, only 84 have been considered as 2 authors had no affiliated university. Appendix 10 presents a detailed list of the 49 different universities identified. Out of those 49, 18 are associated with more than one authorship and together account for 63% of the total. It is important to highlight the contribution of the Arizona State University (US) which affiliated

seven authorships, followed by Brigham Young University (US) that affiliated five, and Kennesaw State University (US) and West Virginia University (US) which affiliated four authorships each.

4.1.5 Affiliated Country

The Affiliated Country was obtained by identifying the geographical location of the 84 affiliated universities. As a result, six countries were found in the continents of America, Asia, Europe, and Oceania. Appendix 11 presents a list of countries identified including its distribution by journal. The overwhelming majority of authorships are from the United States of America (more precisely, 87%). The other countries portrayed are Canada, Hong Kong, Singapore, Finland and Australia which respectively weight 6%, 1%, 2%, 2% and 1% of total affiliated countries. With regards to diversity, only two journals (CAR and JAR) have authorships from more than two different countries, while only three journals (CAR, CPA, and JAR) have published articles written by authors outside of the American continent. The journal with a lower degree of heterogeneity is AH, including only one country.

These results indicate that accounting fraud research is mainly conducted by authors from the USA which is consistent with the findings of Fogarty and Jonas (2013) who investigated authors characteristics of major accounting journals and found that about 10% of authorships were from universities outside the USA. Moreover, it is important to note that the vast majority of the articles also concern accounting fraud in the USA.

4.1.6 Research Method

Research method refers to the methods or techniques used by authors to conduct their research. For the 35 articles, six different research methods were applied. An overview of this analysis' results is illustrated in Appendix 12, whereas Appendix 13 aggregates research methods used by journal. The preferred methods for accounting fraud research were empirical research (13 articles, 37%) and experimental research (12 articles, 34%). Other research methods identified

were literature review and survey (four articles each) as well as case study and interview (one article each). AJTP was the journal with more diversified research methods, however, it was also the one with more articles included in this study. All articles considered from AOS and from JAR conducted their research using the same methods, respectively, experimental and empirical. It is also interesting to note that CPA, with only two articles, used two different research methods not applied by any other journal considered.

4.1.7 Subject of Analysis

This variable was chosen in order to further understand the type of research conducted by identifying the subject of the research's analysis. The articles distribution by subject of analysis and journal is shown in Appendix 14 and Appendix 15. The most common subject of analysis was companies with 15 articles (43%). This subject of analysis refers to research conducted on companies through existing data made available by a third-party such as databases. Most of these concerned fraud cases that were identified by the Accounting and Auditing Enforcement Releases (AAERs) which represent the financial reporting enforcement actions by the Securities and Exchange Commission. The second most used was students with five articles (14%), followed by academic literature with four articles (11%). Overall, auditors were the chosen participants for seven articles, although they are the sole participants in only five articles: external auditors with 3 articles (9%) and internal auditors with 2 articles (6%). In the other two cases, the participants were internal auditors and management accountants, and internal auditors, external auditors and economic crime investigators. Other subjects of analysis include audit committee members, bank loan officers, CFOs and fraud perpetrators used in one article each. From the journal perspective, AJTP, which has more articles, is also the journal with more differentiated subjects of analysis and JAR is the only journal with a sole subject of analysis for all its articles.

4.1.8 Topic

This analysis aggregates the topic covered by each of the 35 articles. By identifying the topic and consequently providing a general view of the research conducted in each article, more can be understood about the nature of accounting fraud literature. Appendix 16 identifies the number of articles by topic and Appendix 17 contains that distribution by journal.

The articles included in this study were classified into nine topics. Auditing was the most studied topic (covering either internal and/or external auditing related articles) which accounts for 29%, or 10 articles. The second most recurring accounting fraud topic is Fraud Indicators, which has been studied in nine articles, representing 26%. This last topic comprises research conducted on the characteristics of fraud companies and factors used to assess fraud risk. Both these topics were not only the most frequent but also the ones covered in more journals since they were present in five out of six journals being considered. Other topics include Reporting fraud (four articles, 11%), Fraud detection (three articles, 9%), Fraud synthesis (three articles, 9%), Corporate governance (two articles, 6%), Incentives (two articles, 6%), Co-Offending (one article, 3%) and Rationalization (one article, 3%). The Fraud synthesis' topic combines three literature reviews which provide a broad overview of the accounting fraud topic.

From a journal point of view, topic heterogeneity seems to reflect the number of articles per journal. This means AJTP studied a higher number of differentiated research areas whereas CPA is the one with a lower number.

4.1.9 Theoretical Framework

This analysis intends to better understand the theoretical frameworks used in each article, which is evident in Appendix 18. Only 15% of all articles clearly refer to a specific theoretical framework. For those, one article each was developed using the following theoretical frameworks: cumulative prospect theory, organizational justice theory, planned behaviour

theory, psychology theory, and reasoned action theory. Most of these theories were identified in articles published by AJPT.

4.2 Associations Analysis

After the analysis of each variable, this section aims to provide further insights on accounting fraud research by associating the variables with each other. The most significant associations conducted were between authorship and affiliated university/country, affiliated country and research method, research method and topic, subject of analysis and topic, year of publication and topic, and affiliated country and topic.

4.2.1 Authorship and Affiliated University/Country

As previously outlined, 77% of all articles have been written by more than one author. Therefore, this analysis aims to further investigate the degree of collaboration between authors with different affiliated universities and different affiliated countries, which is shown in Appendixes 19 and 20, respectively. As only 27 articles have been written by more than one author, this will be the universe considered for this analysis. Out of the 27, 25 articles (93%) have been published by authors different affiliated universities which suggest a high degree of collaboration across universities. However, only 4 articles (15%) resulted from collaborations between authors of different countries. These collaborations occurred between Canada – Singapore, Australia – Canada, Canada - Singapore – USA and Canada – USA. This indicates a low degree of multi-national collaboration.

4.2.2 Affiliated Country and Research Method

This association explores the preferred research methods from a geographical point of view. The resulting distribution is aggregated in Appendixes 21 and 22. As some articles have been written by authors from different countries, this analysis considers all 84 previously identified affiliated countries. As acknowledged before empirical and experimental methods have been the most used for accounting fraud research. American was the continent where they were

applied the most and the USA had the highest contribution per country (82% and 93%, respectively). Authors affiliated in Asia (Hong Kong and Singapore) have only published research using the empirical method. The only countries where empirical and/or experimental methods have not been preferred ones were Australia and Finland in which it was exclusively used interview and survey, respectively. Regarding the other methodological approaches, case studies and literature reviews have only been written in the USA, interviews in both Canada (50%) and Australia (50%), and surveys in the USA (75%) and Finland (25%).

4.2.3 Research Method and Topic

An association between the research method used to develop the study and the topic was conducted. The results of this analysis are shown in Appendixes 23 and 24.

To develop the Auditing topic (the most common in this study), four research methods were employed which makes it the most diversified studied topic. These research methods were: case study (10%), empirical (40%), experimental (40%) and survey (10%). Fraud Indicators, the second most developed topic, has been researched adopting mostly empirical methods (67%) but also experiments (22%) and surveys (11%). To explore the Fraud detection topic, empirical, experimental and literature review have been used in equal proportions. All the other six topics have been studied using a unique research method. Corporate governance studies were developed through surveys, Fraud synthesis given the nature of the topic used only literature reviews, Reporting fraud was studied through experimental methods and Incentives through empirical studies. Co-Offending and Rationalization were the research focus of only one article each, having applied interview and experiment, respectively.

4.2.4 Subject of Analysis and Topic

This analysis investigates the relationship between the subject of analysis chosen to conduct the research with the topic it was used to study. Appendixes 25 and 26 contain the articles distribution by subject of analysis and topic. As outlined before, 43% of the analysed articles

conducted their research using companies. This topic is also the one used to develop a higher number of differentiated topics in which it can be highlighted its use for Auditing and Fraud Indicators (which overall are the two topics with most articles) in 6 and 5 articles, respectively, accounting for 50% and 67% of total articles in each topic. Other significant subjects in the study of Auditing were internal and external auditors which together represent 40% of this topic. To investigate the Corporate Governance topic, one article employed as participants audit committee members while the other used CFOs. Moreover, 67% of all publications related to Fraud detection have used companies as subjects of analysis, while 75% concerning Reporting fraud have used students as participants. All other topics have applied a unique subject of analysis. Fraud synthesis and Incentives have used academic literature and companies, respectively. The topics, Co-Offending and Rationalization, were developed in only one article each using for its research, respectively, fraud perpetrators and students.

4.2.5 Year of Publication and Topic

An evolution of the published articles by topic is shown in Appendix 27. To better identify any potential trend, the 18 years' time frame considered for this study was divided in half as evident in Appendix 28. The topic which has more constantly been explored is Auditing with at least one article published in eight different years, mostly from 2000 to 2008 (60%). Literature about Fraud indicators was written in five different years predominantly between 2009 and 2017. The previously identified peak of publications in 2013 is mainly due to the contribution of this last topic. These two topics are also the research focus of most articles. Research on Co-Offending, Reporting Fraud, and Rationalization topics was only conducted during the second half of the period considered. Fraud detection articles were mostly published in the first half while fraud synthesis was mostly studied in the second half, however, it is important to note that for these topics the differences between periods are not very significant. Publications concerning Corporate governance and Incentives were conducted in the same proportion in both periods.

4.2.6 Affiliated Country and Topic

This analysis explores potential preferences in certain topics from a geographical point of view. Appendixes 29 and 30 summarise the results found. For the purpose of this analysis, 84 affiliated countries were considered as some articles have been written by authors from different countries. Out of the nine topics, seven have been developed by at least one author affiliated in the USA. For these topics, which include Auditing and Fraud indicators (the two most studied topics), this is also the country with the highest contribution. The only two topics which were conducted solely by authors outside the USA are Co-Offending and Rationalization. Canadian authors covered the following four topics: Auditing, Co-Offending, Fraud indicators and Rationalization representing, respectively, 5%, 50%, 9% and 100% of authorships associated with that topic. There are only three Asian authorships (from Hong Kong and Singapore) which investigated the Auditing (5%), Fraud indicators (5%) and Incentives (25%) topics. Finish authors published only 9% of the authorships in Fraud indicators whereas Oceania was responsible for 50% of the authorships associated with Co-Offending.

5. Conclusion

The aim of this systematic literature review is to characterise academic literature published on the topic of Accounting Fraud. To achieve that objective, a total of 35 articles were examined. This was done through the analysis of key bibliographic and methodological variables as well as the subsequent associations conducted between those variables. As a result, several important insights into accounting fraud research were obtained.

Between 2009 and 2017 there was a 50% increase in the number of articles when comparing to the previous nine years (2000 to 2008). This confirms the increasing interest in the accounting fraud topic. The analysis concerning author characteristics reveals that there is a group of authors which have recurrently written articles on this research area. Most authorships

identified were male (70%) while female ones only account for 30%. The vast majority (87%) of authors are affiliated in the USA and the university with the highest number of affiliated authorships is the Arizona State University. The results also show that 77% of all articles have been written by more than one author and although there is a high degree of collaboration between authors from different universities, the level of multi-national collaboration is still low. The most frequently adopted research method was empirical research (37%) closely followed by experimental research (34%). Both methods have been mainly used in the USA representing, respectively, 82% and 93% of all authorships associated with that method. The results also indicate that the most used subjects of analysis were companies (43%) and students (14%). Auditing was the most studied topic mostly from 2000 to 2008 using mainly empirical (40%) and experimental (40%) method. The second most studied was Fraud Indicators predominantly explored between 2009 and 2017 using mostly empirical methods (67%). For both topics, the research was mostly conduct using companies as subjects of analysis and by authors affiliated in the USA. Only 15% of all articles have clearly referred a specific theoretical framework.

These results contribute by providing a structure and systematic overview of the most recent literature published on accounting fraud. In addition to characterizing the literature, this study can provide valuable insights to guide researchers, who want to investigate this topic, in identifying the themes and methods of the current research and in finding directions for future research. Overall, this study intends to contribute to the future development and evolution of the accounting fraud research area.

Despite these contributions, this study has certain limitations. First, only articles written in English were considered. In addition, the inclusion criteria included six journals which were considered the most relevant. These limitations may have implied the exclusion from this study of relevant articles. Second, a limited number of articles was retrieved to be included in this systematic literature review which might have slightly impacted the results.

Many of the above limitations could be approached through an extension of this study. Future research could consider a broader scope as to include additional or all available journals as well as articles written in other languages. A higher number of articles could be identified with extended or different selection criteria. In addition, as articles concerning accounting fraud were found to be mainly written by authors affiliated in the USA, it would be interesting to have a higher number of authors affiliated in other countries studying this research area.

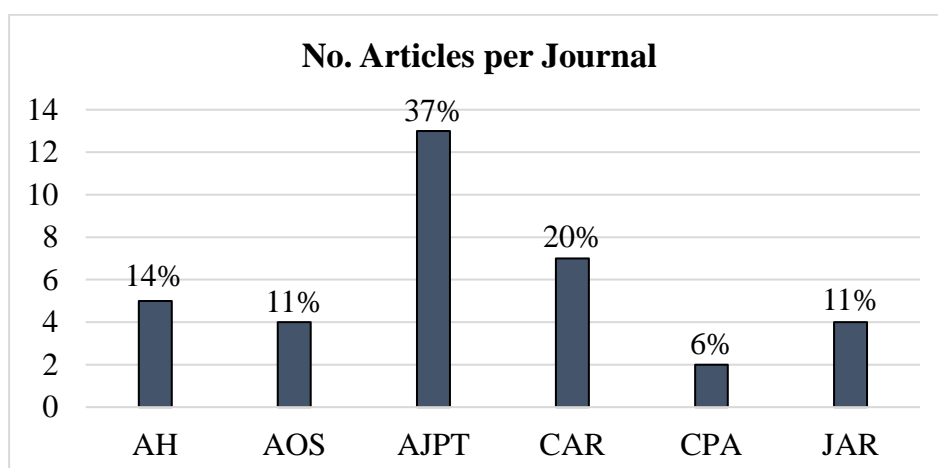
6. References

- Beasley, Mark S. 1996. "An Empirical Analysis of the Relation Between the Board of Director Composition and Financial Statement Fraud." *The Accounting Review*, 71 (4): 443-465.
- Beasley, Mark S., Joseph V. Carcello, Dana R. Hermanson and Terry L. Neal. 2010. "Fraudulent Financial Reporting 1998-2007, An Analysis of U.S. Public Companies."
- Bell, Timothy B., and Joseph V. Carcello. 2000. "A Decision Aid for Assessing the Likelihood of Fraudulent Financial Reporting." *Auditing: A Journal of Practice and Theory*, 19 (1): 169-184.
- Beneish, Messod D. 1999a. "Incentives and Penalties Related to Earnings Overstatements that Violate GAAP." *The Accounting Review*, 74 (4): 425-457.
- Beneish, Messod D. 1999b. "The Detection of Earnings Manipulation." *Financial Analysts Journal*, 55 (5): 24-36.
- Black, William K. 2005. "'Control frauds' as financial super-predators: How 'pathogens' make financial markets inefficient". *The Journal of Socio-Economics*, 34 (6): 734-755.
- Booth, Andrew, Anthea Sutton and Diana Papaioannou. 2016. *Systematic Approaches to a Successful Literature Review*. 2nd Edition. Sage: Sage Publications Ltd.
- Braun, Robert L. 2000. "The effect of time pressure on auditor attention to qualitative aspects of misstatements indicative of potential fraudulent financial reporting." *Accounting, Organizations and Society*, 25 (3): 243-259.
- Brennan, N., and J. Hennessy. 2001. "Forensic Accounting". *Dublin: Round Hall Sweet & Maxwell*.
- Brennan, Niamh M., and McGrath, Mary. 2007. "Financial Statement Fraud: Some Lessons from US and European Case Studies". *Australian Accounting Review*, 17 (2): 49-61.
- Carcello, Joseph V., and Albert L. Nagy. 2004. "Audit Firm Tenure and Fraudulent Financial Reporting." *Auditing: A Journal of Practise & Theory*, 23 (2): 55-69.

- Chan, Kam C., Carl R. Chen and Louis T. W. Cheng. 2009. "Co-authorship Patterns in Accounting Research." *Internal Review of Accounting, Banking and Finance*, 1 (2): 1-10
- Dechow, Patricia M., and Douglas J. Skinner. 2000. "Earnings Management: Reconciling the Views of Accounting Academics, Practitioners, and Regulators." *Accounting Horizons*, 14 (2): 235-250.
- Dechow, Patricia M., Richard G. Sloan and Amy P. Sweeney. 1996. "Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC." *Contemporary Accounting Research*, 13 (1): 1-36.
- Erickson, Merle, Michelle Hanlon and Edward Maydew. 2006. "Is There a Link between Executive Equity Incentives and Accounting Fraud?" *Journal of Accounting Research*, 44 (1): 113-143.
- Farber, David B. 2005. "Restoring Trust after Fraud: Does Corporate Governance Matter?" *The Accounting Review*, 80 (2): 539-561.
- Fich, Eliezer M. and Anil Shivdasani. 2007. "Financial fraud, director reputation, and shareholder wealth." *Journal of Financial Economics*, 86: 306-336
- Fogarty, Timothy J. and Gregory A. Jonas. 2013. "Author Characteristics for Major Accounting Journals: Differences among Similarities 1989-2009." *Issues in Accounting Review*, 28 (4): 731-757.
- Free, Clinton. 2015. "Looking through the fraud triangle: a review and call for new directions." *Meditari Accountancy Research*, 23 (2): 175-196.
- Healy, Paul M., and James M. Wahlen. 1999. "A Review of the Earnings Management Literature and Its Implications for Standard Setting." *Accounting Horizons*, 13 (4): 365-383.
- Hogan, Chris E., Zabihollah Rezaee, Richard A. Riley, Jr., and Uma K. Velury. 2008. "Financial Statement Fraud: Insights from the Academic Literature". *Auditing: A Journal of Practice & Theory*, 27 (2): 231-252.
- IFRS. "IAS 1 Presentation of Financial Statements." Accessed on October 4, 2018. <https://www.ifrs.org/issued-standards/list-of-standards/ias-1-presentation-of-financial-statements/>
- IFAC. "International Standard on Auditing 240." Accessed on October 4, 2018. <http://www.ifac.org/system/files/downloads/a012-2010-iaasb-handbook-isa-240.pdf>
- Jensen, Michael C. 1993. "The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems." *Journal of Finance*, 48 (3): 831-878.
- Kaminski, Kathleen A., T. Sterling Wetzel and Guan. 2004. "Can financial ratios detect fraudulent financial reporting?" *Managerial Auditing Journal*, 19 (1): 15-28.
- Koh, Kevin, Dawn A. Matsumoto and Shivaram Rajgopal. 2008. "Meeting or Beating Analyst Expectations in the Post-Scandals World: Changes in Stock Market Rewards and Managerial Actions." *Contemporary Accounting Research*, 25 (4): 1067-1098.

- Levitt, Arthur. 1998. "The Numbers Game." Accessed on August 23, 2018. <https://www.sec.gov/news/speech/speecharchive/1998/spch220.txt>.
- McMullen, Dorothy Ann. 1996. "Audit Committee Performance: An Investigation of the Consequences Associated with Audit Committees." *Auditing: A Journal of Practice & Theory*, 15 (1): 87-103.
- Myers, James N., Linda A. Myers and Thomas C. Omer. 2003. "Exploring the Term of the Auditor-Client Relationship and the Quality of Earnings: A Case for Mandatory Auditor Rotation?" *The Accounting Review*, 78 (3): 779-799.
- Perols, Johan L., and Barbara A. Lougee. 2011. "The relation between earnings management and financial statement fraud." *Advances in Accounting, incorporating Advances in International Accounting*, 27: 39-53.
- Rezaee, Zabihollah. 2005. "Causes, Consequences, and deterrence of financial statement fraud." *Critical Perspectives on Accounting*, 16 (3): 277-298.
- Rosner, Rebecca L. 2003. "Earnings Manipulation in Failing Firms." *Contemporary Accounting Research*, 20 (2): 361-408.
- Summers, Scott L., and John T. Sweeney. 1998. "Fraudulently Misstated Financial Statements and Insider Trading: An Empirical Analysis." *The Accounting Review*, 73 (1): 131-146.
- Tranfield, David, David Denyer and Palminder Smart. 2003. "Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review." *British Journal of Management*, 14 (3): 207-222
- Wells, Joseph T. 2009. "Fraud: the occupational hazards." Accessed September 9, 2018. <https://www.accountancyage.com/aa/feature/1748964/fraud-occupational-hazards>.
- Wolfe, David T., and Dana R. Hermanson. 2004. "The Fraud Diamond: Considering the Four Elements of Fraud." *The CPA Journal*, 74 (12): 38-42.
- Zainudin, Emie Famieza and Hafiza Aishah Hashim. 2016. "Detecting fraudulent financial reporting using financial ratio." *Journal of Financial Reporting and Accounting*, 14 (2): 266-278.

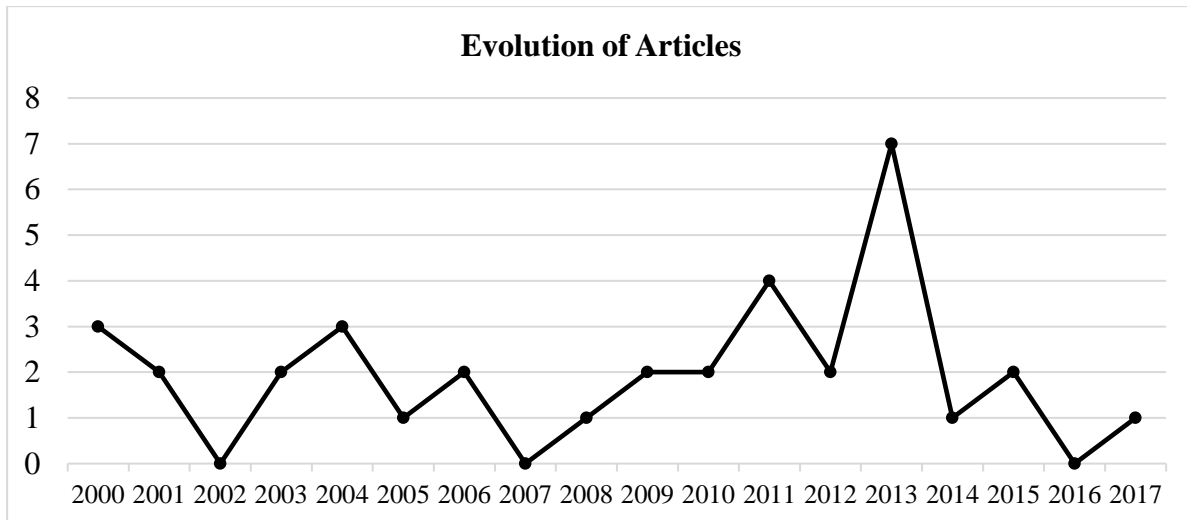
7. Appendixes



Appendix 1 – Number of Articles published by Journal

Accounting Horizons	Accounting, Organizations and Society
Beasley et al. (2000) James (2003) Trompeter et al. (2014) Wilbanks et al. (2017) Wilks and Zimbelman (2004)	Braun (2000) Knapp and Knapp (2001) Murphy (2012) Seifert et al. (2010)
Auditing: A Journal of Practice and Theory	Contemporary Accounting Research
Bell and Carcello (2000) Carcello and Nagy (2004) Carpenter et al. (2011) Church et al. (2001) Gillett and Uddin (2005) Hogan et al. (2008) Johnson et al. (2013) Kaplan et al. (2009) Kaplan et al. (2011) Perols (2011) Trompeter et al. (2013) Wright and Berger (2011) Zhang et al. (2013)	Caskey and Hanlon (2013) Free and Murphy (2015) Fung (2015) Lennox and Pittman (2010) Markelevich and Rosner (2013) Prawitt et al. (2012) Rosner (2003)
Critical Perspectives on Accounting	Journal of Accounting Research
Gullkvist and Jokipii (2013) Morrison (2004)	Brazel et al. (2009) Erickson et al. (2006) Lennox et al. (2013) Miller (2006)

Appendix 2 – List of Articles published by Journal



Appendix 3 – Evolution of Articles published

Year	Journal						Total	
	AH	AOS	AJPT	CAR	CPA	JAR	Frequency	%
2000	1	1	1	0	0	0	3	9%
2001	0	1	1	0	0	0	2	6%
2002	0	0	0	0	0	0	0	0%
2003	1	0	0	1	0	0	2	6%
2004	1	0	1	0	1	0	3	9%
2005	0	0	1	0	0	0	1	3%
2006	0	0	0	0	0	2	2	6%
2007	0	0	0	0	0	0	0	0%
2008	0	0	1	0	0	0	1	3%
2009	0	0	1	0	0	1	2	6%
2010	0	1	0	1	0	0	2	6%
2011	0	0	4	0	0	0	4	11%
2012	0	1	0	1	0	0	2	6%
2013	0	0	3	2	1	1	7	20%
2014	1	0	0	0	0	0	1	3%
2015	0	0	0	2	0	0	2	6%
2016	0	0	0	0	0	0	0	0%
2017	1	0	0	0	0	0	1	3%
Total	5	4	13	7	2	4	35	100%

Appendix 4 – Distribution of Articles by Year and Journal

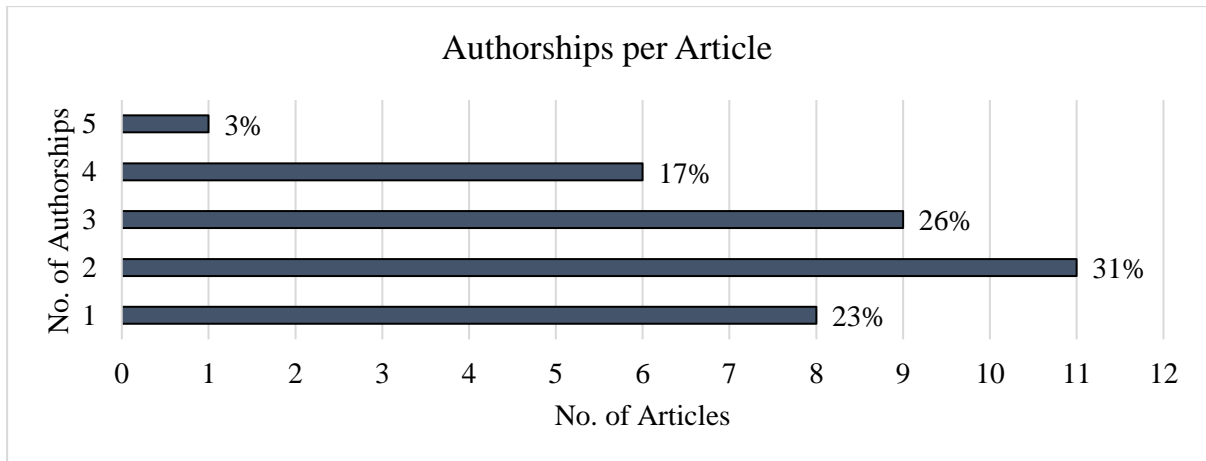
Time Range	AH		AOS		AJPT		CAR		CPA		JAR		Total	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
2000-2008	3	60%	2	50%	5	38%	1	14%	1	50%	2	50%	14	40%
2009-2017	2	40%	2	50%	8	62%	6	86%	1	50%	2	50%	21	60%
Total	5	100%	4	100%	13	100%	7	100%	2	100%	4	100%	35	100%

Appendix 5 – Distribution of Articles by Time range and Journal

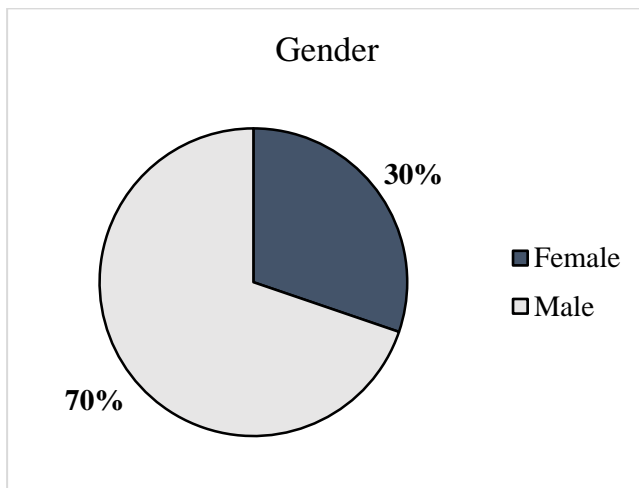
Authors	No. of Articles	% of Total Authorships
Carcello, Joseph V.	3	3%
Carpenter, Tina D.	3	3%
Jones, Keith L.	3	3%
Riley, Richard A., Jr.	3	3%
Hanlon, Michelle	2	2%
Hermanson, Dana R.	2	2%
Kaplan, Steven E.	2	2%
Lennox, Clive	2	2%
Murphy, Pamela R.	2	2%
Pany, Kurt	2	2%
Pittman, Jeffrey	2	2%
Rosner, Rebecca L.	2	2%
Samuels, Janet A.	2	2%
Trompeter, Gregory M.	2	2%
Zhang, Jian	2	2%
Zimbelman, Mark F.	2	2%
Apostolou, Barbara A.	1	1%
Beasley, Mark S.	1	1%
Bell, Timothy B.	1	1%
Berger, Leslie	1	1%
Braun, Robert L.	1	1%
Brazel, Joseph F.	1	1%
Caskey, Judson	1	1%
Church, Bryan K.	1	1%
Desai, Naman	1	1%
Erickson, Merle	1	1%
Fretwell, Phillip Z.	1	1%
Fung, Michael K.	1	1%
Gillett, Peter R.	1	1%
Gullkvist, Benita	1	1%
Hassell, John M.	1	1%
Hogan, Chris E.	1	1%

Authors	No. of Articles	% of Total Authorships
James, Kevin L.	1	1%
Johnson, Eric N.	1	1%
Joireman, Jeff	1	1%
Jokipii, Annukka	1	1%
Knapp, Carol A.	1	1%
Knapp, Michael C.	1	1%
Kuhn, John N., Jr.	1	1%
Lapides, Paul D.	1	1%
Lisowsky, Petro	1	1%
Markelevich, Ariel	1	1%
Maydew, Edward L.	1	1%
McMillan, Jeffrey J.	1	1%
Miller, Gregory S.	1	1%
Morrison, Mary Ashby	1	1%
Nagy, Albert L.	1	1%
Perols, Johan	1	1%
Pope, Kelly Richmond	1	1%
Prawitt, Douglas F.	1	1%
Reckers, Philip M. J.	1	1%
Reimers, Jane L.	1	1%
Rezaee, Zabihollah	1	1%
Schneider, Arnold	1	1%
Seifert, Deborah L.	1	1%
Sharma, Vineeta D.	1	1%
Sharp, Nathan Y.	1	1%
Sweeney, John T.	1	1%
Thornton, John M.	1	1%
Uddin, Nancy	1	1%
Velury, Uma K.	1	1%
Wilbanks, Robert M.	1	1%
Wilks, T. Jeffrey	1	1%
Wood, David A.	1	1%
Wright, William F.	1	1%
Free, Clinton	1	1%
Total	86	100%

Appendix 6 – List of Authorships



Appendix 7 - Number of Authorships



Appendix 8 – Gender Distribution

	AH		AOS		AJPT		CAR		CPA		JAR		Total	
Gender	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Female	2	14%	3	38%	13	34%	4	31%	3	100%	1	10%	26	30%
Male	12	86%	5	63%	25	66%	9	69%	0	0%	9	90%	60	70%
Total	14	100%	8	100%	38	100%	13	100%	3	100%	10	100%	86	100%

Appendix 9 – Gender Distribution by Journal

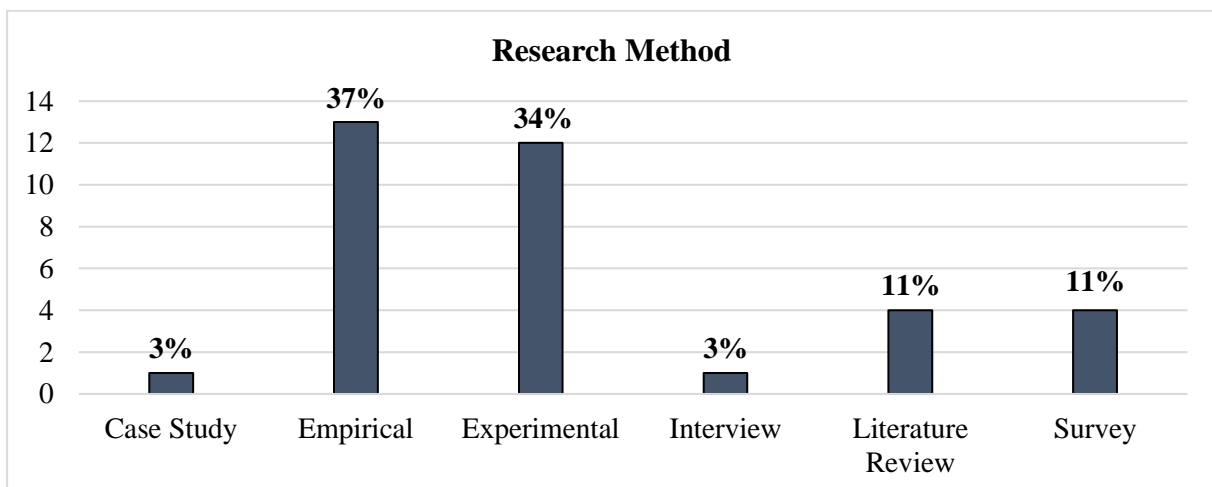
Affiliated University	No. of Authorships	% of Total
Arizona State University	7	8%
Brigham Young University	5	6%
Kennesaw State University	4	5%
West Virginia University	4	5%
George Mason University	3	4%
University of Central Florida	3	4%
University of Georgia	3	4%
University of Tennessee	3	4%
Washington State University	3	4%
Georgia Institute of Technology	2	2%
Long Island University	2	2%
Memorial University of Newfoundland	2	2%
Nanyang Technological University	2	2%
North Carolina State University	2	2%
Queen's University	2	2%
San Jose State University	2	2%
University of Central Oklahoma	2	2%
University of Illinois	2	2%
Brock University	1	1%
Clemson University	1	1%
DePaul University	1	1%
Hanken School of Economics	1	1%
Harvard University	1	1%
Hong Kong Polytechnic University	1	1%
Illinois State University	1	1%
Indiana University	1	1%
John Carroll University	1	1%
Massachusetts Institute of Technology	1	1%
Michigan State University	1	1%
Middle Tennessee State University	1	1%
Monmouth University	1	1%
Rollins College	1	1%
Southeastern Louisiana University	1	1%
Suffolk University	1	1%
Tennessee Tech University	1	1%
Texas A&M University	1	1%
University of Chicago	1	1%
University of Delaware	1	1%
University of Memphis	1	1%
University of Michigan	1	1%
University of New Jersey	1	1%
University of New South Wales	1	1%

Affiliated University	No. of Authorships	% of Total
University of North Carolina	1	1%
University of Oklahoma	1	1%
University of San Diego	1	1%
University of South Florida	1	1%
University of Texas	1	1%
University of Vaasa	1	1%
University of Wyoming	1	1%
Total	84	100%

Appendix 10 – List of Affiliated Universities

Affiliated Country	AH		AOS		AJPT		CAR		CPA		JAR		Total	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
America	14	100%	8	100%	36	100%	10	77%	1	33%	9	90%	78	93%
Canada	0	0%	1	13%	1	3%	2	15%	0	0%	1	10%	5	6%
USA	14	100%	7	88%	35	97%	8	62%	1	33%	8	80%	73	87%
Asia	0	0%	0	0%	0	0%	2	15%	0	0%	1	10%	3	4%
Hong Kong	0	0%	0	0%	0	0%	1	8%	0	0%	0	0%	1	1%
Singapore	0	0%	0	0%	0	0%	1	8%	0	0%	1	10%	2	2%
Europe	0	0%	0	0%	0	0%	0	0%	2	67%	0	0%	2	2%
Finland	0	0%	0	0%	0	0%	0	0%	2	67%	0	0%	2	2%
Oceania	0	0%	0	0%	0	0%	1	8%	0	0%	0	0%	1	1%
Australia	0	0%	0	0%	0	0%	1	8%	0	0%	0	0%	1	1%
Total	14	100%	8	100%	36	100%	13	100%	3	100%	10	100%	84	100%

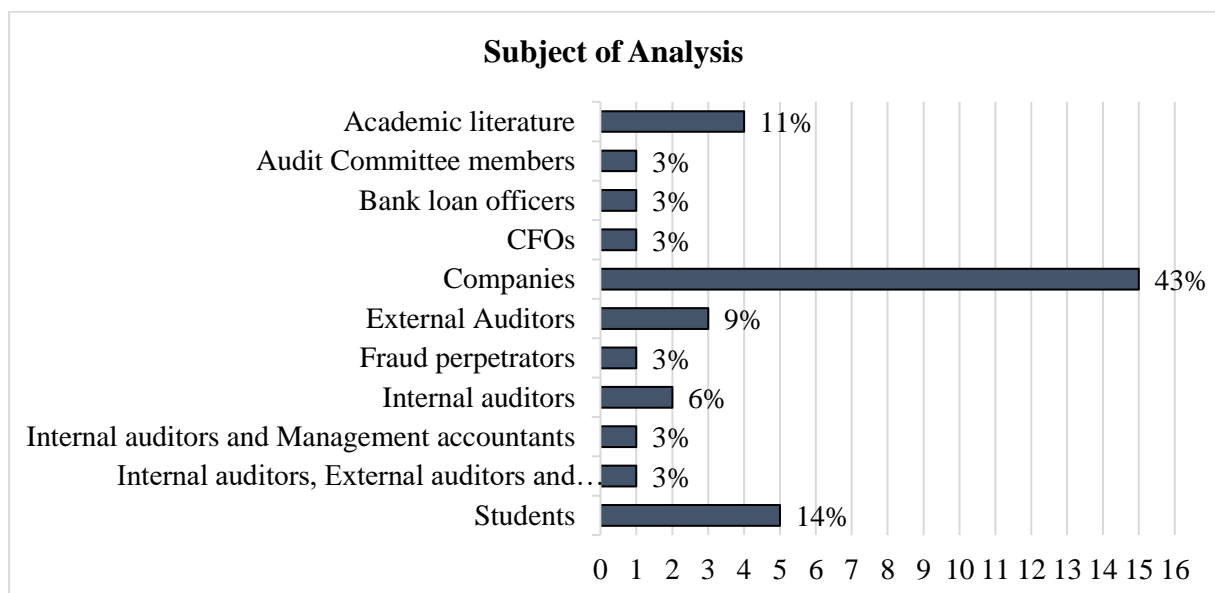
Appendix 11 – Affiliated Countries by Journal



Appendix 12 – Number of Articles by Research Method

Research Method	AH		AOS		AJPT		CAR		CPA		JAR		Total	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Case Study	0	0%	0	0%	0	0%	0	0%	1	50%	0	0%	1	3%
Empirical	1	20%	0	0%	2	15%	6	86%	0	0%	4	100%	13	37%
Experimental	0	0%	4	100%	8	62%	0	0%	0	0%	0	0%	12	34%
Interview	0	0%	0	0%	0	0%	1	14%	0	0%	0	0%	1	3%
Literature Review	2	40%	0	0%	2	15%	0	0%	0	0%	0	0%	4	11%
Survey	2	40%	0	0%	1	8%	0	0%	1	50%	0	0%	4	11%
Total	5	100%	4	100%	13	100%	7	100%	2	100%	4	100%	35	100%

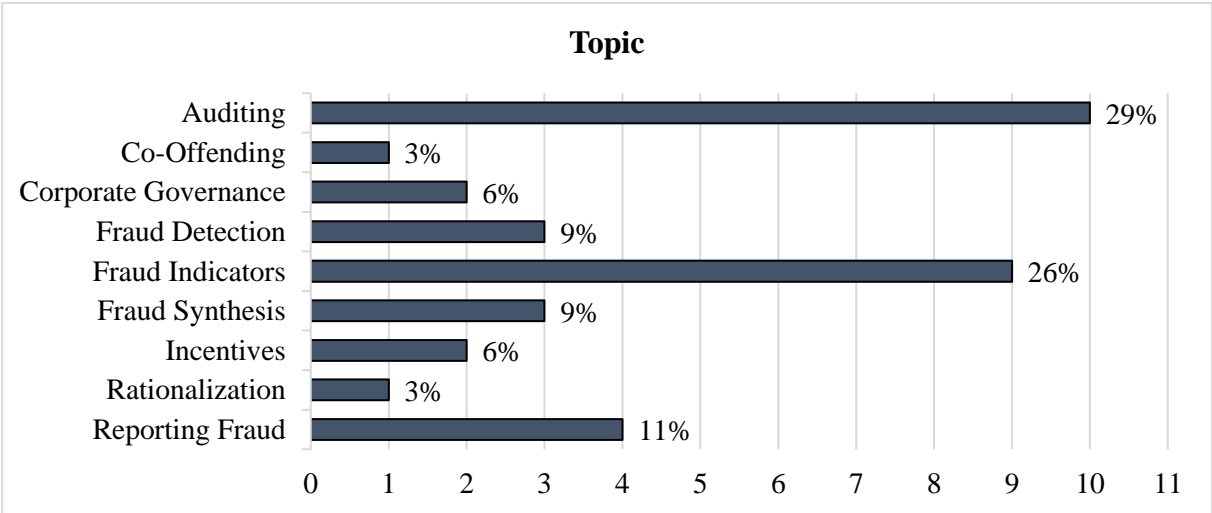
Appendix 13 – Research Methods Distribution by Journal



Appendix 14 – Number of Articles by Subject of Analysis

Subject of Analysis	AH		AOS		AJPT		CAR		CPA		JAR		Total	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Academic literature	2	40%	0	0%	2	15%	0	0%	0	0%	0	0%	4	11%
Audit Committee members	1	20%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%
Bank loan officers	1	20%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%
CFOs	0	0%	0	0%	1	8%	0	0%	0	0%	0	0%	1	3%
Companies	1	20%	0	0%	3	23%	6	86%	1	50%	4	100%	15	43%
External Auditors	0	0%	2	50%	1	8%	0	0%	0	0%	0	0%	3	9%
Fraud perpetrators	0	0%	0	0%	0	0%	1	14%	0	0%	0	0%	1	3%
Internal auditors	0	0%	0	0%	2	15%	0	0%	0	0%	0	0%	2	6%
Internal auditors and Management accountants	0	0%	1	25%	0	0%	0	0%	0	0%	0	0%	1	3%
Internal auditors, External auditors and Economic crime investigators	0	0%	0	0%	0	0%	0	0%	1	50%	0	0%	1	3%
Students	0	0%	1	25%	4	31%	0	0%	0	0%	0	0%	5	14%
Total	5	100%	4	100%	13	100%	7	100%	2	100%	4	100%	35	100%

Appendix 15 – Subjects of Analysis by Journal



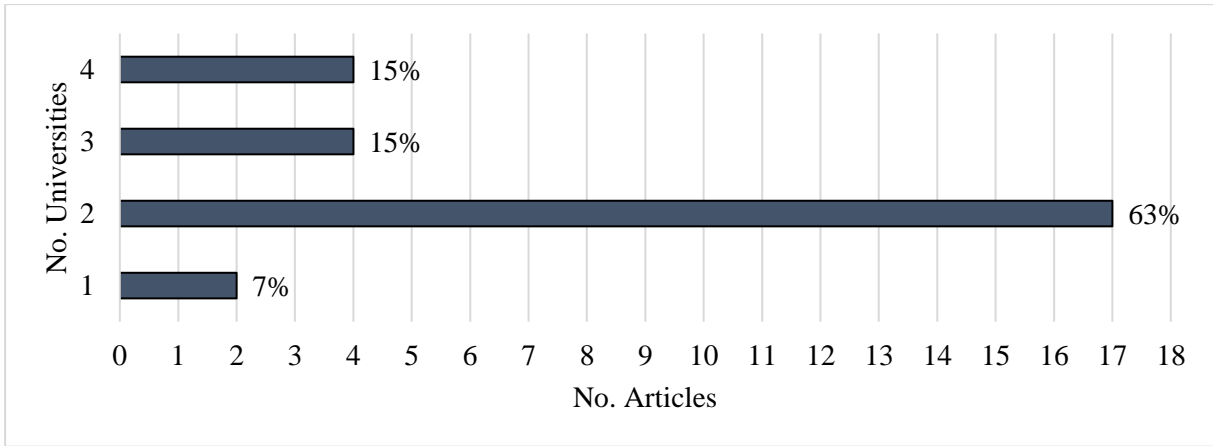
Appendix 16 – Number of Articles by Topic

Topic	AH		AOS		AJPT		CAR		CPA		JAR		Total	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Auditing	1	20%	2	50%	3	23%	3	43%	1	50%	0	0%	10	29%
Co-Offending	0	0%	0	0%	0	0%	1	14%	0	0%	0	0%	1	3%
Corporate Governance	1	20%	0	0%	1	8%	0	0%	0	0%	0	0%	2	6%
Fraud Detection	1	20%	0	0%	1	8%	0	0%	0	0%	1	25%	3	9%
Fraud Indicators	1	20%	0	0%	3	23%	2	29%	1	50%	2	50%	9	26%
Fraud Synthesis	1	20%	0	0%	2	15%	0	0%	0	0%	0	0%	3	9%
Incentives	0	0%	0	0%	0	0%	1	14%	0	0%	1	25%	2	6%
Rationalization	0	0%	1	25%	0	0%	0	0%	0	0%	0	0%	1	3%
Reporting Fraud	0	0%	1	25%	3	23%	0	0%	0	0%	0	0%	4	11%
Total	5	100%	4	100%	13	100%	7	100%	2	100%	4	100%	35	100%

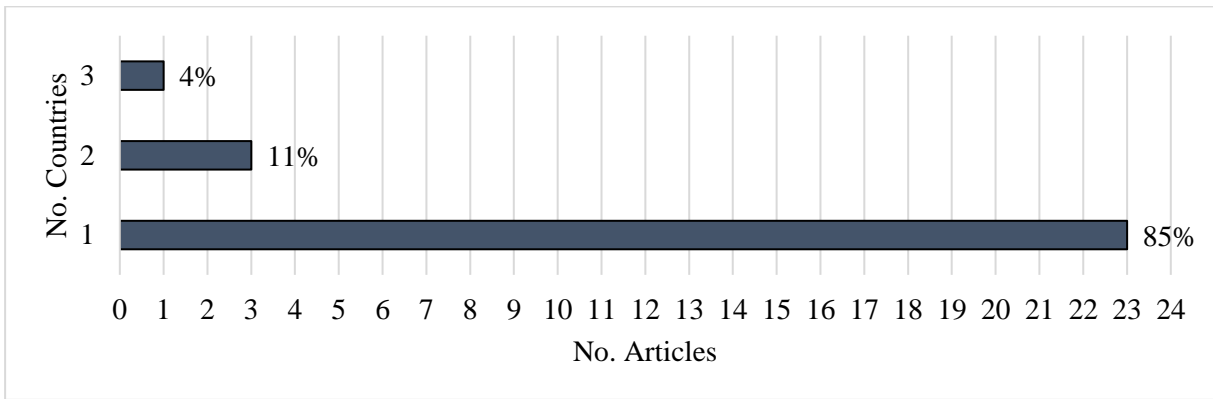
Appendix 17 – Topics Distribution by Journal

Theoretical Framework	AH		AOS		AJPT		CAR		CPA		JAR		Total	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Cumulative Prospect Theory	0	0%	0	0%	0	0%	1	14%	0	0%	0	0%	1	3%
Organizational Justice Theory	0	0%	1	25%	0	0%	0	0%	0	0%	0	0%	1	3%
Planned Behavior Theory	0	0%	0	0%	1	8%	0	0%	0	0%	0	0%	1	3%
Psychology Theory	0	0%	0	0%	1	8%	0	0%	0	0%	0	0%	1	3%
Reasoned Action Theory	0	0%	0	0%	1	8%	0	0%	0	0%	0	0%	1	3%
Other	5	100%	3	75%	10	77%	6	86%	2	100%	4	100%	30	86%
Total	5	100%	4	100%	13	100%	7	100%	2	100%	4	100%	35	100%

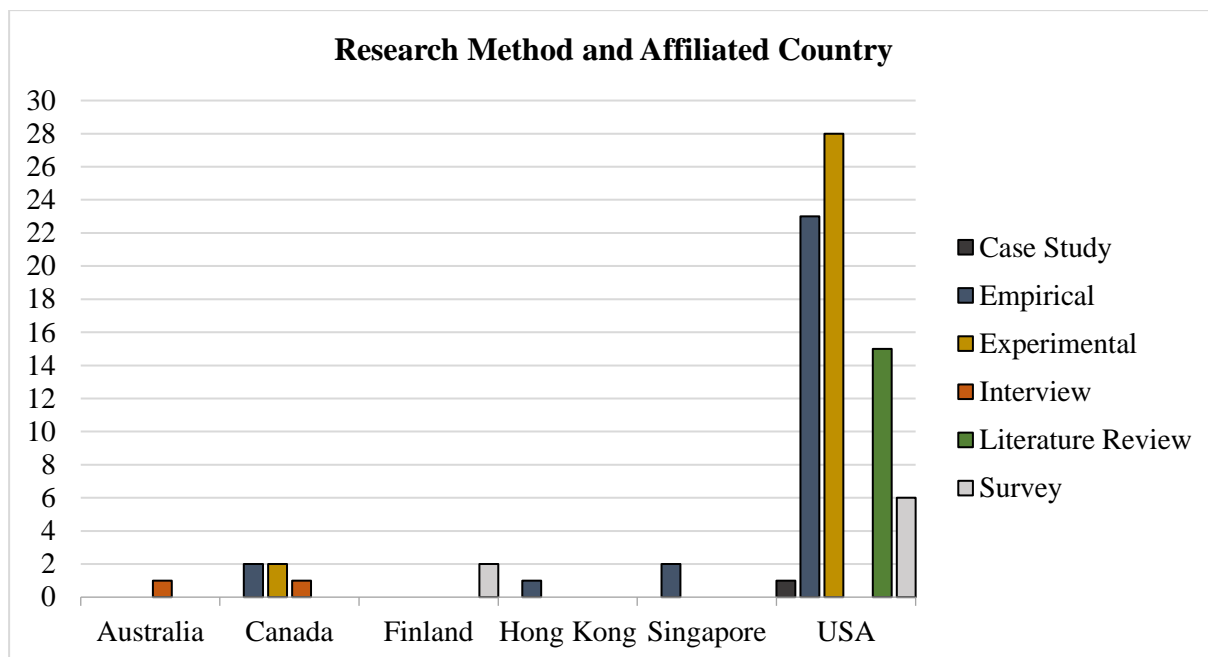
Appendix 18 – Theoretical Framework by Journal



Appendix 19 – Articles Distribution by Number of Unique Affiliated Universities



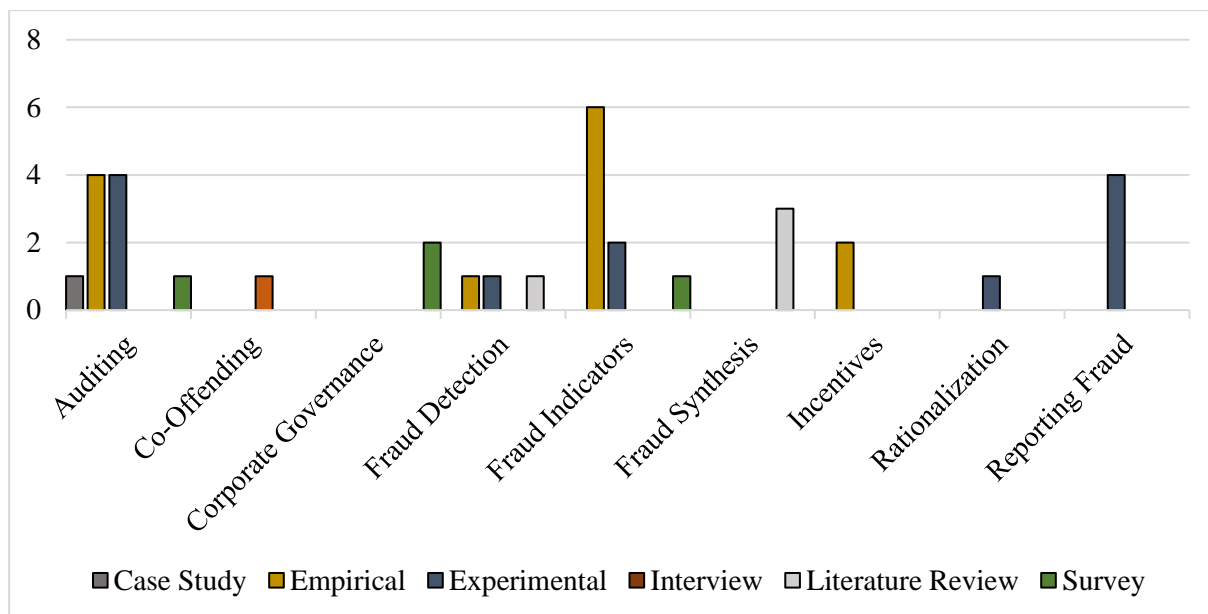
Appendix 20 - Articles Distribution by Number of Unique Affiliated Countries



Appendix 21 – Research Methods and Affiliated Countries

Affiliated Country	Case Study		Empirical		Experimental		Interview		Literature Review		Survey		Total	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%
America	1	100%	25	89%	30	100%	1	50%	15	100%	6	75%	78	93%
Canada	0	0%	2	7%	2	7%	1	50%	0	0%	0	0%	5	6%
USA	1	100%	23	82%	28	93%	0	0%	15	100%	6	75%	73	87%
Asia	0	0%	3	11%	0	0%	0	0%	0	0%	0	0%	3	4%
Hong Kong	0	0%	1	4%	0	0%	0	0%	0	0%	0	0%	1	1%
Singapore	0	0%	2	7%	0	0%	0	0%	0	0%	0	0%	2	2%
Europe	0	0%	0	0%	0	0%	0	0%	0	0%	2	25%	2	2%
Finland	0	0%	0	0%	0	0%	0	0%	0	0%	2	25%	2	2%
Oceania	0	0%	0	0%	0	0%	1	50%	0	0%	0	0%	1	1%
Australia	0	0%	0	0%	0	0%	1	50%	0	0%	0	0%	1	1%
Total	1	100%	28	100%	30	100%	2	100%	15	100%	8	100%	84	100%

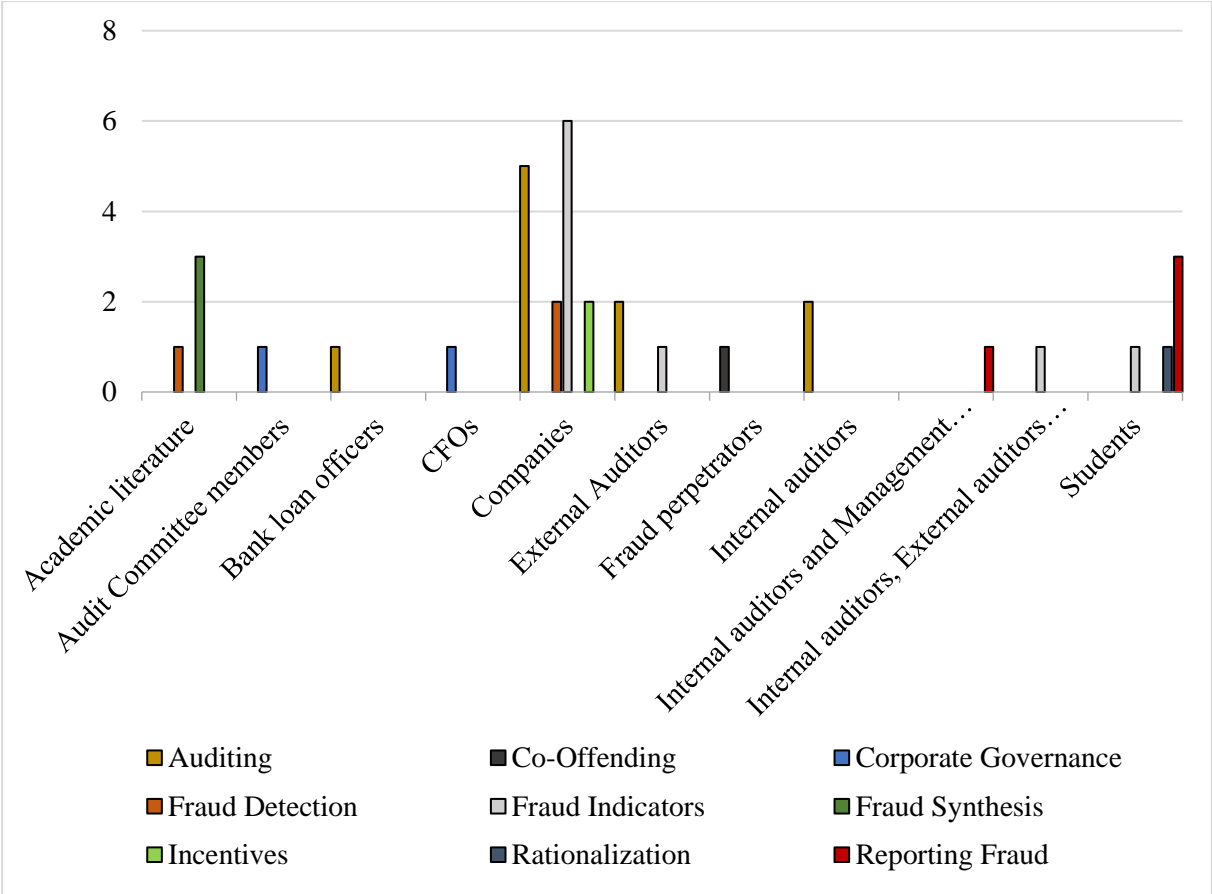
Appendix 22 – Research Methods Distribution by Affiliated Country



Appendix 23 – Research Methods and Topics

Research Method	Auditing		Co-Offending		Corporate Governance		Fraud Detection		Fraud Indicators		Fraud Synthesis		Incentives		Rationalization		Reporting Fraud		Total	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Case Study	1	10%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%
Empirical	4	40%	0	0%	0	0%	1	33%	6	67%	0	0%	2	100%	0	0%	0	0%	13	37%
Experimental	4	40%	0	0%	0	0%	1	33%	2	22%	0	0%	0	0%	1	100%	4	100%	12	34%
Interview	0	0%	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%
Literature Review	0	0%	0	0%	0	0%	1	33%	0	0%	3	100%	0	0%	0	0%	0	0%	4	11%
Survey	1	10%	0	0%	2	100%	0	0%	1	11%	0	0%	0	0%	0	0%	0	0%	4	11%
Total	10	100%	1	100%	2	100%	3	100%	9	100%	3	100%	2	100%	1	100%	4	100%	35	100%

Appendix 24 – Topic Distribution by Research Method



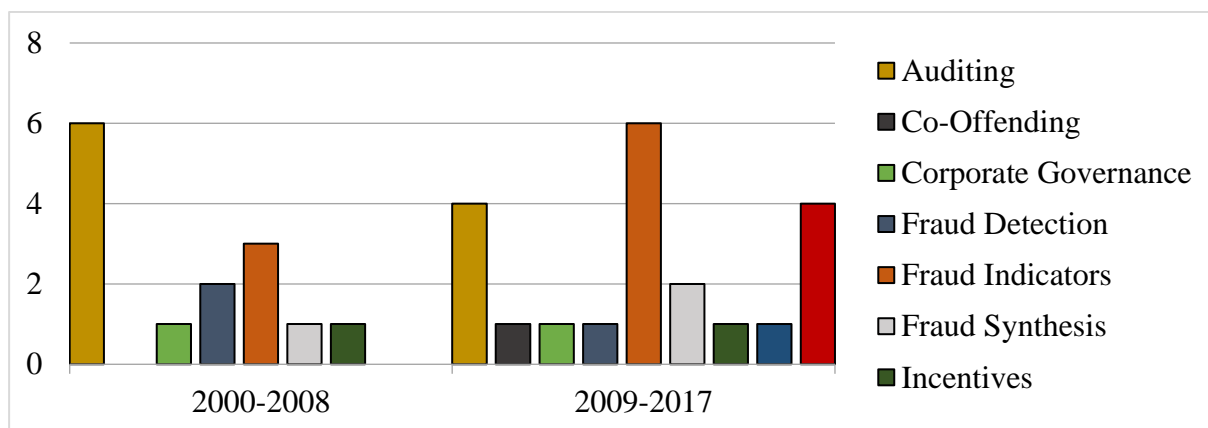
Appendix 25 – Subjects of Analysis and Topics

Subject of Analysis	Auditing		Co-Offending		Corporate Governance		Fraud Detection		Fraud Indicators		Fraud Synthesis		Incentives		Rationalization		Reporting Fraud		Total	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Academic literature	0	0%	0	0%	0	0%	1	33%	0	0%	3	100%	0	0%	0	0%	0	0%	4	11%
Audit Committee members	0	0%	0	0%	1	50%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%
Bank loan officers	1	10%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%
CFOs	0	0%	0	0%	1	50%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%
Companies	5	50%	0	0%	0	0%	2	67%	6	67%	0	0%	2	100%	0	0%	0	0%	15	43%
External Auditors	2	20%	0	0%	0	0%	0	0%	1	11%	0	0%	0	0%	0	0%	0	0%	3	9%
Fraud perpetrators	0	0%	1	100%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%
Internal auditors	2	20%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	2	6%
Internal auditors and Management accountants	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	25%	1	3%
Internal auditors, External auditors and Economic crime investigators	0	0%	0	0%	0	0%	0	0%	1	11%	0	0%	0	0%	0	0%	0	0%	1	3%
Students	0	0%	0	0%	0	0%	0	0%	1	11%	0	0%	0	0%	1	100%	3	75%	5	14%
Total	10	100%	1	100%	2	100%	3	100%	9	100%	3	100%	2	100%	1	100%	4	100%	35	100%

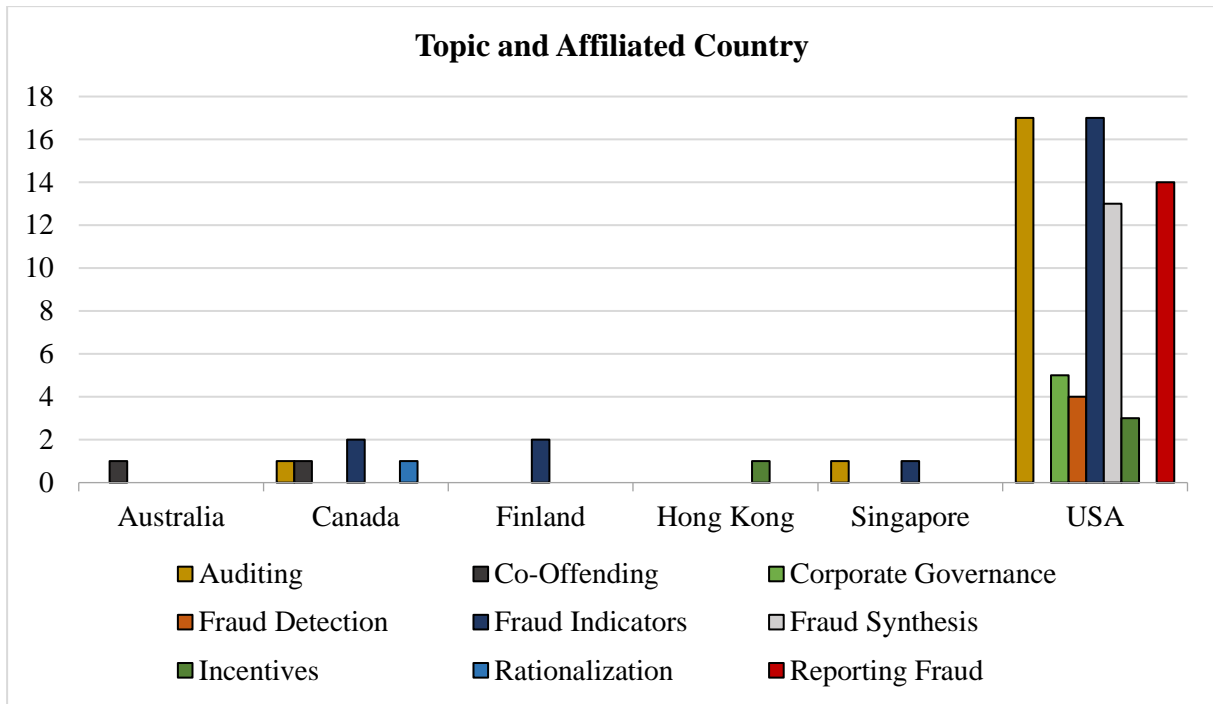
Appendix 26 – Topic Distribution by Subject of Analysis

	Auditing	Co-Offending	Corporate Governance	Fraud Detection	Fraud Indicators	Fraud Synthesis	Incentives	Rationalization	Reporting Fraud	Total	% Total
2000	1	0	0	0	2	0	0	0	0	3	9%
2001	2	0	0	0	0	0	0	0	0	2	6%
2002	0	0	0	0	0	0	0	0	0	0	0%
2003	1	0	0	0	1	0	0	0	0	2	6%
2004	2	0	0	1	0	0	0	0	0	3	9%
2005	0	0	1	0	0	0	0	0	0	1	3%
2006	0	0	0	1	0	0	1	0	0	2	6%
2007	0	0	0	0	0	0	0	0	0	0	0%
2008	0	0	0	0	0	1	0	0	0	1	3%
2009	0	0	0	0	1	0	0	0	1	2	6%
2010	1	0	0	0	0	0	0	0	1	2	6%
2011	1	0	0	1	1	0	0	0	1	4	11%
2012	1	0	0	0	0	0	0	1	0	2	6%
2013	1	0	0	0	4	1	0	0	1	7	20%
2014	0	0	0	0	0	1	0	0	0	1	3%
2015	0	1	0	0	0	0	1	0	0	2	6%
2016	0	0	0	0	0	0	0	0	0	0	0%
2017	0	0	1	0	0	0	0	0	0	1	3%
Total	10	1	2	3	9	3	2	1	4	35	100%

Appendix 27 – Topics Distribution by Year



Appendix 28 – Number of Articles by Topic between 2000-2008 and 2009-2017



Appendix 29 – Affiliated Countries and Topics

Affiliated Country	Auditing		Co-Offending		Corporate Governance		Fraud Detection		Fraud Indicators		Fraud Synthesis		Incentives		Rationalization		Reporting Fraud		Total	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
America	18	95%	1	50%	5	100%	4	100%	19	86%	13	100%	3	75%	1	100%	14	100%	78	93%
Canada	1	5%	1	50%	0	0%	0	0%	2	9%	0	0%	0	0%	1	100%	0	0%	5	6%
USA	17	89%	0	0%	5	100%	4	100%	17	77%	13	100%	3	75%	0	0%	14	100%	73	87%
Asia	1	5%	0	0%	0	0%	0	0%	1	5%	0	0%	1	25%	0	0%	0	0%	3	4%
Hong Kong	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	25%	0	0%	0	0%	1	1%
Singapore	1	5%	0	0%	0	0%	0	0%	1	5%	0	0%	0	0%	0	0%	0	0%	2	2%
Europe	0	0%	0	0%	0	0%	0	0%	2	9%	0	0%	0	0%	0	0%	0	0%	2	2%
Finland	0	0%	0	0%	0	0%	0	0%	2	9%	0	0%	0	0%	0	0%	0	0%	2	2%
Oceania	0	0%	1	50%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	1%
Australia	0	0%	1	50%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	1%
Total	19	100%	2	100%	5	100%	4	100%	22	100%	13	100%	4	100%	1	100%	14	100%	84	100%

Appendix 30 – Topics Distribution by Affiliated Country