

Conceptual map of fraud: theoretical and empirical configuration of international studies and future research opportunities

Abstract

Objective: To explain the fraud phenomenon through the construction of a conceptual map and to synthesize the different types of fraud.

Method: A literature review was developed of theoretical studies, as well as a research synthesis of empirical studies.

Results: The literature review revealed that the Fraud Triangle Theory originated in white-collar crime. The elements of the theory (opportunity, motivation and rationalization) have evolved since 1950 and have recently been criticized, as discoveries have been made that change the understanding of the ex ante motives. They mainly evidence that the “rationalization” element (the cognitive part) is limited and unclear thus far in the literature. In addition, the study presents the most productive journals and authors on the theme fraud.

Contributions: The evidences in this research demonstrate the interdisciplinarity of the theme and appoint research opportunities. This study also contributes to fraud prevention and detection research by understanding the motives that make individuals commit such criminal acts or misconduct.

Key words: Fraud; Conceptual Map; Literature Review; Research Synthesis.

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1. Introduction

The understanding of Sutherland's (1940) White-Collar Crime theory and, later, Cressey's (1950) Fraud Triangle are consequences of Auguste Comte and Emile Durkheim's rationality of positivist thinking. Therefore, if we want to understand what crime essentially consists of, according to Durkheim (1893), the characteristics need to be highlighted that are identical in all the criminological varieties of different social types. In short, the social sciences seek to provide essentially rational explanations of social affairs (Burrell & Morgan, 1979). Thus, Durkheim (1894) argues, the fundamental principle is the objective reality of social facts.

This objective reality, the fruit of positivist thinking, guided Sutherland (1940) in the identification that the commonalities in white-collar crimes were a person of respectability and high social class. In this line, Cressey (1950) identified three common elements (rationalization, motivation and opportunity) and developed the Fraud Triangle, based on an attempt to understand the motives that would lead a respectable and high-class individual to break the law. These elements were apparently simple, although their implications were broad. The Public Company Accounting Oversight Board (PCAOB), in Statement of Auditing Standards (SAS) 99, also uses the elements of the Fraud Triangle as a guide for auditors to understand the fraud phenomena. In general, accounting literature reports on and focuses on what drives individuals to commit criminal acts (Albrecht, Howe & Romney, 1984; Murphy & Dacin, 2011; Murphy, 2012; Trompeter, Carpenter, Desai, Jones & Riley, 2014).

Since the creation of the Fraud Triangle in 1950, society, organizations and their relationships have become more complex, with financial, economic and social pressures, as well as the creation of various sophisticated financial products, affecting nations regardless of the degree of development. For example, frauds at AOL, Enron, Freddie Mac, HealthSouth, Tyco, Xerox and Worldcom in the 2000s (Carson, 2003; Lehman & Okcabol, 2005; Levi, 2008; Choo & Tan, 2007; Ball, 2009; Trompeter, Carpenter, Desai, Jones & Riley, 2012; Lokanan, 2015; Eaton & Korach, 2016); during the subprime crisis; and in Bernard Madoff's Ponzi scheme in 2008 (Tomasic, 2011; Trompeter *et al.*, 2012). In Europe, the Parmalat case (Italy); BAE Systems (United Kingdom); ComROAD AG and Siemens (Germany); and Royal Ahold (The Netherlands) (Ball, 2009). In Asia, specifically the Samsung case (South Korea) (Brigatto, 2017); and in Brazil, the companies Petrobras, Odebrecht and several others in the construction industry.

With the dissemination and range of fraud cases, there is a need for studies that explain or seek to understand the causes and their consequences. This need, from the perspective of the social sciences, can be understood (or approached) using scientific methods. Based on a dense and critical view of the facts, the literature review permits integrating the various findings / results in the attempt to understand the fraud phenomenon. With this intention, in this study, we reviewed the theoretical and empirical studies on the subject. Therefore, we used the Knowledge Development Process-Constructivist (ProKnow-C) tool as a structured process for the selection, reflection and analysis of both theoretical and empirical studies.

Thus, the first objective sought to explain the phenomenon of fraud through the construction of a conceptual map based on the literature review, as it does not originate in Accountancy. For Cooper (2009), this review aims to present theories that explain a particular phenomenon, in this case fraud.

The second review, a synthesis of empirical research, sought to synthesize and summarize the different types and forms of fraud. According to Cooper (2009), this review focuses on the empirical work and permits summarizing past research, drawing conclusions from different investigations. For example, a typology based on the type of social actor - a corporation or an individual - can be conceived, that is, it can be committed by officials acting on behalf of their corporations or by individuals acting alone. Likewise, victims of fraud can be organizations or individuals. In this sense, according to Holtfreter (2005), little is known about how fraud varies in different organizational contexts. What is seen as fraud or corruption varies in contexts and, over time, this dynamics and the social construction of fraud need to be considered.

Finally, this work contributes to the academic area of research in corporate governance and finance and to microstructure, law and a series of related interdisciplinary fields (Ball, 2009; Cumming, Dannhauser & Johan, 2015), that is, it is important to obtain knowledge from other disciplines and merge it with Accountancy. This study also contributes to fraud prevention and detection research by understanding the reasons that make individuals commit these criminal acts or misconduct. According to Trompeter *et al.* (2012), understanding the fraud triangle can help auditors to project tests to detect the phenomenon.

2. Conceptual Map, Evolution of the Concept and Fraud Types

2.1 Origin of the Fraud Triangle

The concept of crime and poverty were directly related until the 1940s. According to Sutherland (1940), crime was concentrated in individuals of low social class, caused by poverty or by personal and social characteristics considered to be statistically associated with poverty, including mental weakness, psychopathic deviations, shantytowns and deteriorated (unstructured) families.

Sutherland (1940), however, found that crime, in fact, was not only correlated with poverty or with the psychopathic and sociopathic conditions associated with poverty, but that a proper explanation of criminal behavior should continue to be studied. Conventional explanations, according to Sutherland (1940), were invalid mainly because they derived from polarized samples. Samples did not include vast areas of criminal behavior, but only of low-class people.

Thus, Sutherland (1949, p.9) defined white-collar crime as “a crime committed by a respectable person of high social status in the course of his occupation.” All white-collar crimes are, by definition, violations of law committed during a legitimate occupation or pursuit by people who hold respected positions (reputation) in their communities (Coleman, 1987). According to Coleman (1987), the main objective of most white-collar criminals is economic gain or job success (function/work) that can lead to economic gain. According to Sutherland (1940), it can be reduced to two categories: untrustworthy representation of assets and manipulation of power. In this sense, the US courts and commissions divide it into four types: antitrust, false publicity, National Labor Relations and infringement of patents, copyrights and trademarks (Sutherland, 1945).

Zahra, Priem and Rasheed (2005) divide the crime into occupational - against the organization and corporate - in favor of the organization. According to the authors, occupational crimes are those committed against a company for the benefit of the perpetrator (fraudster) and may include embezzlement or unjustified cost increases (fraud on expenses). Corporate crimes, however, are those committed by the perpetrator for the benefit of the corporation. These crimes may include bribery or control of violations. Corporate crimes benefit the company - for example, to obtain a contract or reduce costs - but these crimes can also entail indirect benefits for the perpetrator, such as promotions or salary increases (e.g. traders who negotiate energy contracts through the company Enron).

Schrager and Short (1978) add that, to qualify as an organizational (corporate) crime, an action needs to meet two additional criteria: it has to be illegal and have a severe physical or economic effect (e.g. Enron, Wordcom, Adelphia, Tyco). Illegality emphasizes the affinity between organizational and common crime and establishes organizational responsibility for the potential consequences. White-collar crimes can also be classified according to the degree of individual involvement in the crime. Daboub, Rasheed, Priem and Gray (1995) distinguish between active participation and passive consent; it can be perpetrated (committed) by people at the top or bottom in the management hierarchy.

The content about the origin of the fraud identified in the articles from the Bibliographic Portfolio of the theoretical studies (identifications in numbers) and empirical works (identifications in bold) was synthesized and is presented in the Conceptual Fraud Map in Figure 1.

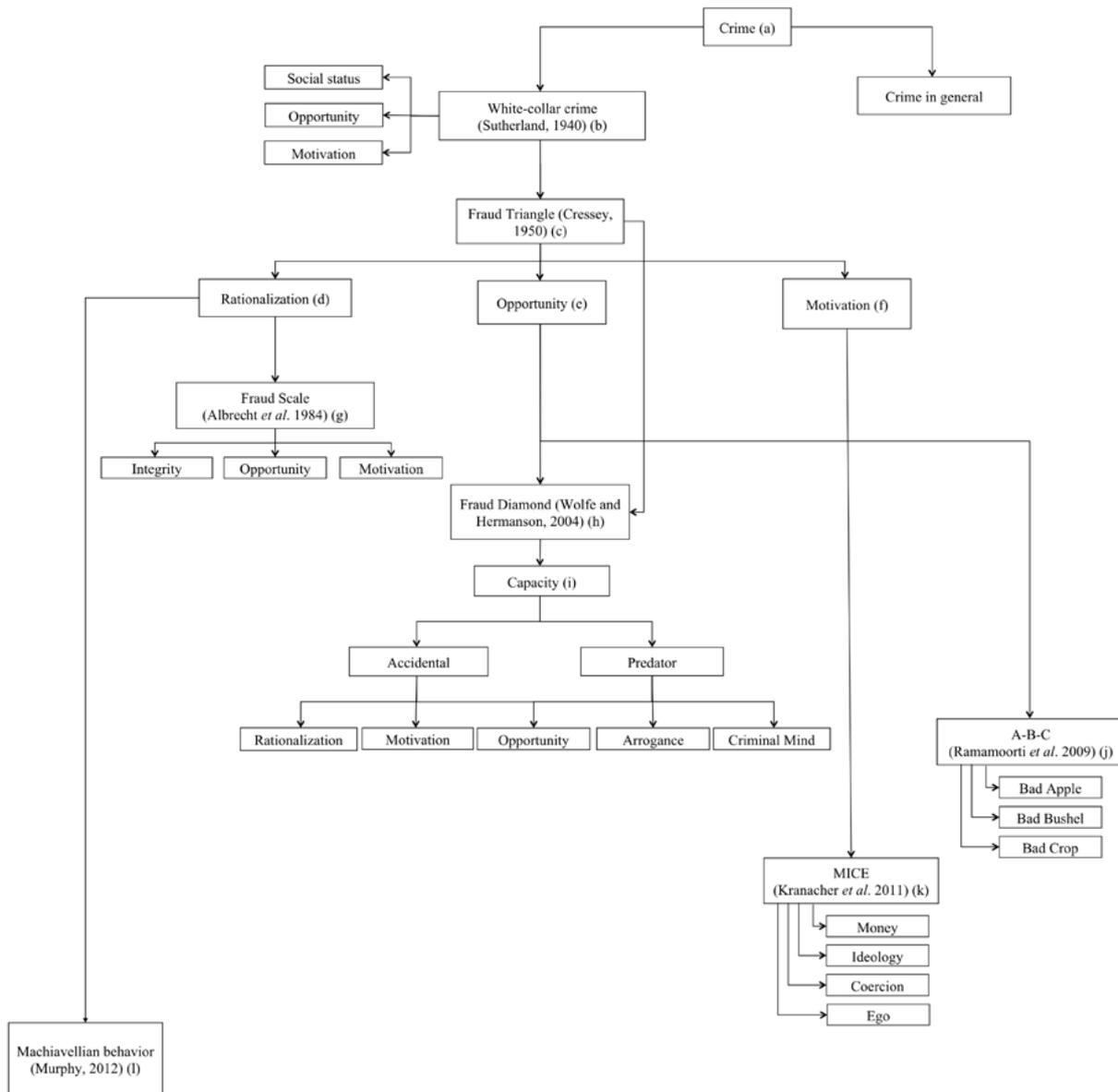


Figure 1. Literature Map – Evolution of Fraud

Obs.: Theoretical studies (identifications in numbers) and empirical works (identifications in bold numbers)

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- (c) [3] [20] [23] [26] [27] [29] [31] [32] [38] **[8] [21] [23] [34] [28]**
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- (f) [3] [5] [20] [25] [31] [38] **[8] [21] [23] [28] [34]**
- (g) [25] **[28] [34]**
- (h) [25] **[21] [28] [38]**
- (i) ([25] [32] **[21] [28] [38]**)
- (j) [31] [33] **[28]**
- (k) [25] [32] **[21] [28]**
- (l) **[28] [34]**

Source: elaborated by the Authors.

Some criticism is formulated against white-collar crime, as it covers many types of behaviors and some unrelated ones. According to Coleman (1987), it could be divided into smaller categories. In this sense, Shapiro (1990) states that, although the attributes of the perpetrator (such as age, sex or mental state) may occasionally be necessary conditions for the application of certain labels, they will not suffice. These concepts provide no guidance on the characteristics of the acts committed or standards broken by those offenders, which constitute corporate, organizational or occupational white-collar crimes. Of course, not all of their negligent or harmful crimes and acts are white-collar crimes. The various types of crimes need to be divided and identified.

The concept of white-collar crime has been virtually unchanged over the years though (Shapiro, 1990), and what has evolved are the elements of the Fraud Triangle, in which more elements have been discovered, perhaps in response to the criticism against white-collar crime. As a result of the lack of consensus in the literature on the causes of fraud, however, there is no reason to believe that the fraud triangle or any existing model can explain most corporate frauds (Coleman, 1987; Benson & Moore, 1992; Lokanan, 2015).

The fraud triangle was developed based on these three fundamental observations and constitutes the basis for most discussions of white-collar crime in accounting curricula (Dorminey, Fleming, Krachner & Riley, 2012).

2.2 Elements of the Fraud Triangle

Cressey (1953) pointed out three elements as necessary for white-collar crime: first, a problem the offender considers non-shareable turns into a stimulus if the situation is perceived as a unique possibility to solve the problem. In the literature, a division of this element (motivation) into pressure and incentive is demonstrated. Secondly, the individual has to regard his position of trust as an opportunity to commit a crime. And finally, the rationalizations used are relevant and necessary to neutralize the criminal or even improper conduct.

In the early 1980s, the Fraud Triangle concept was adapted from criminology to accounting by Steve Albrecht from Brigham Young University. Albrecht was especially interested in identifying factors that led to Occupational Fraud and Abuse (Choo & Tan, 2007). Albrecht, Albrecht, Albrecht and Zimbelman (2011) exemplify what types of abuses can be considered insider trading, corruption and bribery, among others.

Cressey (1950) points to the Triangle of Fraud as the *ex ante* state. Trompeter *et al.* (2014) point out that the *ex post* state would be centered on the act, the effort to conceal the act and the identification of the benefits that the fraudster has accumulated (e.g. conversion - accrued bonuses or increase of the stock option in case of financial fraud).

2.2.1 Rationalization

In an attempt to understand the reasons that would lead a high-class individual who is respectable in the community and holds a position of high social status, Cressey (1950) adds the element Rationalization and develops the Fraud Triangle, together with the elements Motivation and Opportunity.

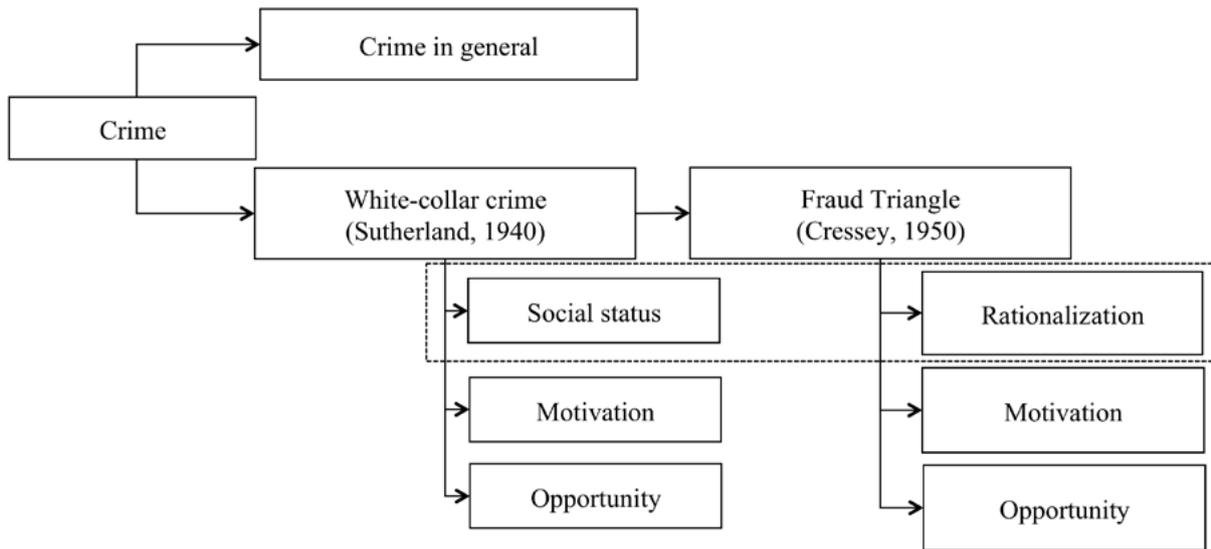


Figure 2. Origin of the Element Rationalization

Source: elaborated by the Authors.

No caso de crime de colarinho branco, os indivíduos tentam minimizar a má consciência e encontrar uma maneira de mostrar suas fraudes como menos ilícitas, mais plausível para si mesmos para manter a autoestima, o autorrespeito ou um autoconceito favorável a si mesmo (Schuchter & Levi, 2016). Esta medida psicológica de autoproteção é o elemento do Triângulo da Fraude descrita como racionalização (Cressey, 1953).

Para Coleman (1987), uma racionalização não é uma desculpa após o fato que alguém inventa para justificar seu comportamento, mas uma parte integrante da motivação do ator para o ato (Cressey, 1969). Murphy e Dacin (2011) afirmam que o indivíduo está ciente de que o comportamento em questão é fraudulento. Dellaportas (2013) acrescenta que racionalização também é a falta de sentimentos e indiferença expressos pelos infratores para justificar qualquer culpa decorrente de sua má conduta.

Com o intuito de prevenir fraudes nas organizações, Albrecht, Howe e Romney (1984) substituíram o elemento “racionalização” por “integridade”. A escala da fraude foi desenvolvida por meio de uma análise de 212 fraudes no início dos anos 80. Os autores mantiveram os dois componentes do Triângulo da Fraude: a pressão (o conceito adaptado da concepção original de Cressey de um problema não compartilhável) e a oportunidade, mas substituíram a racionalização pela integridade pessoal. Esta representação foca a atenção na moralidade do ofensor (Levi, 2008). Segundo Dorminey *et al.* (2012), o benefício de examinar a integridade é que ela pode ser inferida, para um indivíduo, a partir de comportamento passado, histórico, o que contribuiria para a prevenção do ato. A Figura 3 demonstra a evolução do elemento “racionalização”.

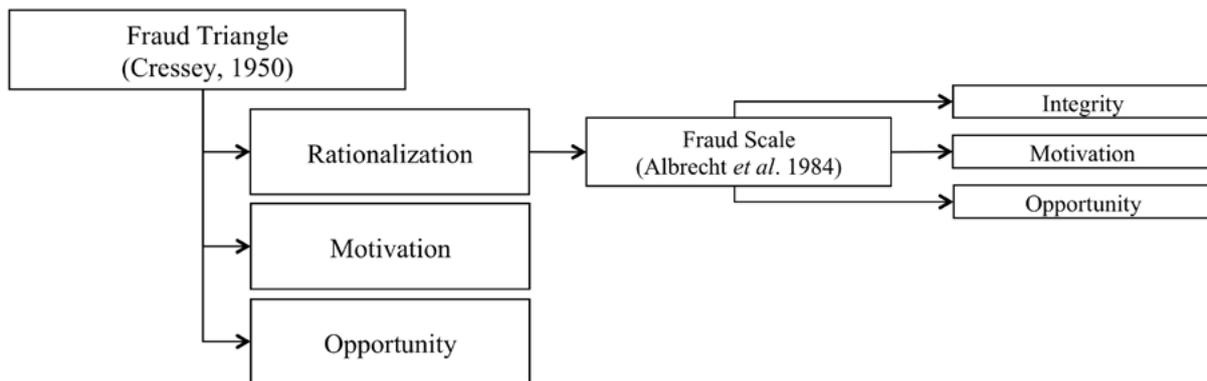


Figure 3. Evolution of the Element Rationalization

Source: elaborated by the authors.

This replacement of the element by Albrecht, Howe and Romney (1984) was already mentioned in Cressey (1950, p.743), who indicated the integrity of the individual linked to other factors, when he mentioned that, aware of the act, the fraudster rationalizes “in relation to integrity, honesty and morality”. Murphy (2012), however, points out that individuals can also use rationalization in a positive way. In the context of the Fraud Triangle, rationalization is used to justify illegal or unethical behavior, which has a negative connotation. The author claims that she found no theory that describes a connection between any predisposition and rationalization, in other words, challenging the justification that the identification of past behavior could help detect future behaviors pointed out by Albrecht, Howe and Romney (1984) and Dorminey *et al.* (2012).

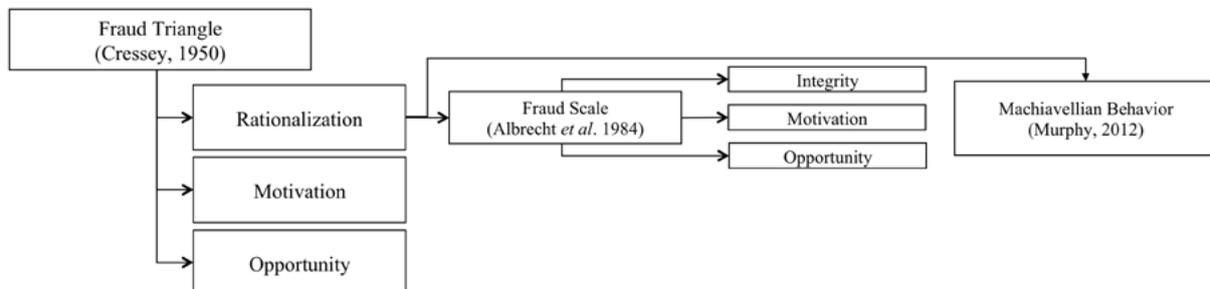


Figure 4. Evolution of the Element Rationalization for Machiavellian Behavior

Source: elaborated by the Authors.

Thus, evidence from Murphy (2012) suggests that the third side of the Fraud Triangle could be more clearly explained, since predispositions are not directly related to rationalizations. Schuchter and Levi (2015) add that the frequently cited “rationalization” is very simplistic: as an inner voice that inhibits pre-crime fraud and a guilty conscience after being present among the interviewees.

2.2.2 Motivation

Another element of the Fraud Triangle is motivation. Motivation, in the Fraud Triangle, is commonly divided by the literature into two sub-elements, incentive and pressure (Schuchter & Levi, 2016). The desire for financial gain is, in fact, an obvious part of motivation for most offenders (Coleman, 1987).

The perceived pressure of a non-shared financial problem creates the motive for the crime (Dorminey *et al.*, 2012). The incentive for “misstatements” may arise because of the pressure to meet the analysts’ forecasts, the compensation and incentive structures, the need for external financing or poor performance (Hogan, Rezaee, Riley, Velury, 2008).

The literature on the pressure to commit occupational fraud can be broadly classified under financial pressure and non-financial pressure. Non-financial pressure can be categorized as (1) work-related pressure; (2) pressure associated with gambling and drug addiction; and (3) pressure associated with individuals who wish to demonstrate luxurious lifestyles (Lokanan, 2015).

Kranacher, Riley and Wells (2011) expanded the concept of pressure, creating the MICE (Money, Ideology, Coersion and Ego). Thus, they modified the evaluation of what is pressure / motivation and expanded the “motivation” element beyond the non-shareable financial pressure (Figure 5). The possibility of identifying collusion was created, which previously was focused only on the characteristics of a single individual. Therefore, pressure may derive from a need to preserve an image of identity as well as a financial need. A significant opportunity for future research may involve exploring the various sources of pressure, in addition to the financial pressures specified in the Fraud Triangle (Dorminey *et al.*, 2012).

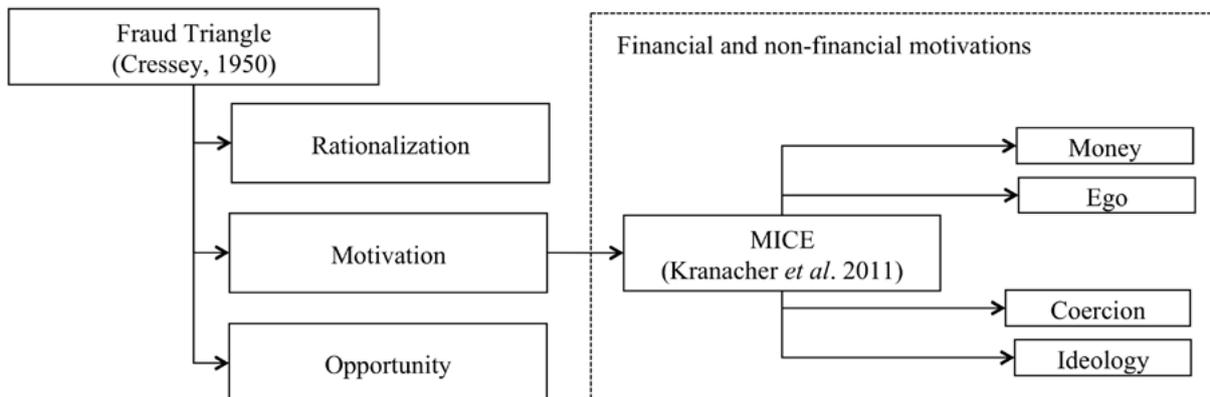


Figure 5. Evolution of the Element Motivation

Source: elaborated by the Authors.

According to Kranacher, Riley and Wells (2011), the elements of MICE mean:

- Money and Ego: seem to be common motivations for fraud. Case histories, such as Madoff, Stanford, Enron, WorldCom, Adelphia, Phar-Mor and ZZZZ Best, provide examples in which the offending author appears to be motivated by ego or right;
- Ideology: probably a less frequent motivation for white-collar crime, but the examples come to mind. First, tax evasion, in which the author cites that “taxes are unconstitutional” or “I pay enough taxes”.
- Coercion: describes the condition in which an individual is unwilling, but is pressed to participate in a scheme of fraud.

Not all human beings are motivated by incentives though. Omar, Johari, and Hasnan (2015) explain that some are more driven by the environment the company offers and this environment includes the structure of the company and the behavior of bosses towards co-workers, contrary to the vision and expansions of the Fraud Triangle, where individuals are driven by various incentives, not just financial ones.

2.2.3 Opportunity

Schuchter and Levi (2016, p.4) argue that motivation and opportunity are inseparably intertwined and any successful theory of white-collar crime should take this into account. Thus, in a sense, all elements are intertwined to a greater or lesser extent. Opportunity plays a key role in explaining organizational offense and is dynamically intertwined with its motivational aspects (Reed & Yeager, 1996).

Regardless of a manager’s motivation, a delinquent act needs an opportunity. According to Schuchter and Levi (2016), all forms of white-collar crime have “opportunity structures” that consist of specific opportunity characteristics and vary by type of fraud.

Opportunities are important in that they influence the distribution of criminal events (within organizations). For example, areas with accessible targets and low detection risk are more likely to be associated with crime than areas with higher-risk targets (Reed & Yeager, 1996).

The perceived opportunity is the perception (1) that a weakness of control is present and, importantly, (2) that the probability of being caught is remote. Therefore, perceived opportunity requires the ability to commit the act and to do so undetected (Dorminey *et al.*, 2012). In the accounting literature, the opportunity was examined within the context of weak internal controls which, according to Lokanan (2015), is the main factor attributable to fraud.

Trompeter *et al.* (2014) offer the COSO framework as a means to organize research into the opportunity to perpetrate and conceal fraud. Trompeter *et al.*, (2014) describe the five components of the framework: control environment, risk assessment, control activities, information and communication, and monitoring. Prevention, according to Dorminey *et al.* (2012), reduces the probability of fraud, mainly through the reduction of opportunity. This makes the internal control structure necessary to prevent fraud. Auditors can help to reduce opportunities because of their ability to detect and, in some cases, investigate fraudulent financial reporting; external auditors also act as a significant impediment, reducing the opportunity to commit fraud (Hogan *et al.*, 2008).

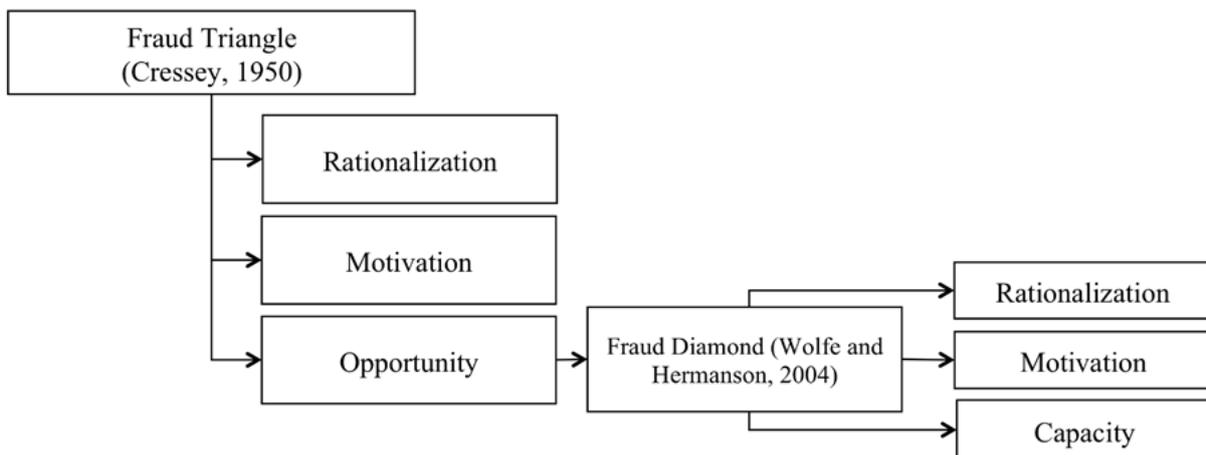


Figure 6. Evolution of the Element Opportunity

Source: elaborated by the Authors.

Wolfe and Hermanson (2004) developed the Fraud Diamond, which includes a fourth element, the perpetrator's (fraudster's) ability to commit fraud (Figure 7). This ability may arise from the position or function of the perpetrator (fraudster) within the organization; intelligence to exploit an opportunity; ego or trust; coercion skills; ability to lie effective and consistently; and ability to manage. In the context of the Fraud Triangle, the capacity modified the construction of the opportunity, limiting the opportunity to a small set of individuals who are thought to have the necessary ability. Thus, ability probably affects the likelihood of an individual being able to exploit opportunities in the organization's control environment (Dorminey *et al.*, 2012).

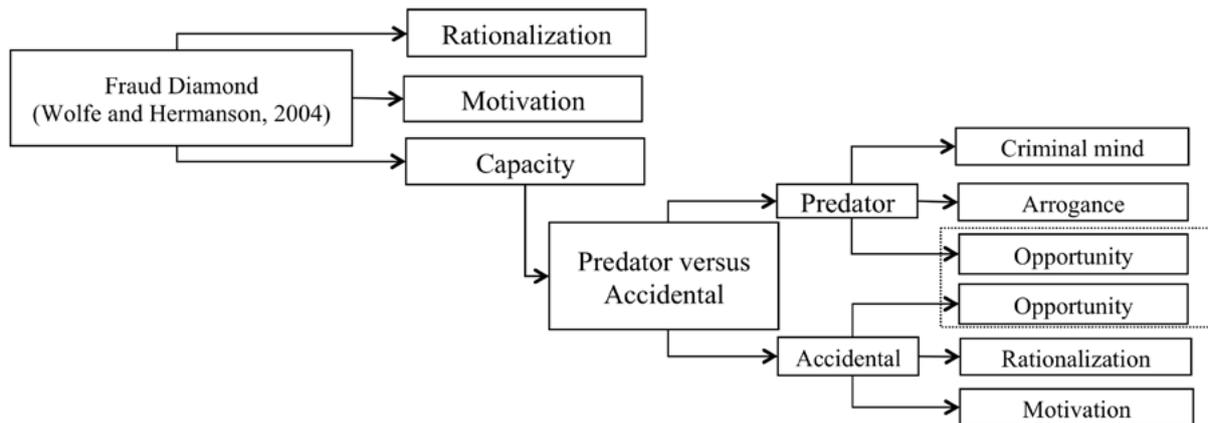


Figure 7. Fraudster (predator) *versus* Accidental

Source: elaborated by the Authors.

Finally, as the predator's (fraudster) central focus is the opportunity, the risk assessment centered on the pressure and rationalization makes it improbable to identify schemes of predators (fraudsters) (Dorminey *et al.*, 2012).

2.3 Types of Frauds

Frauds can be basically divided in two: occupational fraud and organizational fraud, both committed by the individual, but the benefit of fraud differs between the two categories.

Occupational fraud, according to Holtfreter (2005), derives from the use of the profession for personal enrichment through deliberate misuse or misapplication of the resources or assets of the employing organization. And organizational fraud or corporate crime is committed by the perpetrator for the benefit of the corporation / organization (Levi, 2008). It is perceived that the direction of the benefit of the fraud is what defines its category.

Beasley (1996) divides fraud into two categories. The first type includes occurrences where management intentionally issues misleading information in financial reports to outside users - fraud in financial reporting. The second type includes occurrences of misappropriation of assets by top management. Senior management includes the president, vice president, chief executive officer, president, chief financial officer and treasurer. In this sense, Holtfreter (2005) divides fraud into three: the two previously pointed out by Beasley (1996) plus corruption as part of occupational frauds.

Fraud in financial reporting is defined by Rezaee (2005) as a deliberate attempt by corporations to mislead or induce the users of published financial statements to error, especially investors and creditors, through the preparation and disclosure of incorrect financial statements. Albrecht and Albrecht (2008) suggest that fraudulent financial statements have many common features, including the nature of fraud, the types of fraud in the financial statements and how fraud is committed.

According to Rezaee (2005), financial fraud may involve the following schemes:

- Manipulation of accounting practices in accordance with rules-based accounting standards that have become too detailed and too easy to circumvent and contain gaps that allow companies to hide the economic substance from their performance.
- Aggressive accounting, through earnings management.
- Improper disclosure, intentional misrepresentation, omission or misrepresentation of events, transactions, accounts or other material information based on which the financial statements are prepared; deliberate misapplication, intentional misinterpretation and improper execution of accounting standards, principles, policies and methods used to measure, recognize and report economic events and business transactions; intentional omissions and disclosures or presentation of inappropriate disclosures about standards, principles, practices and related financial information.
- Falsification, alteration or manipulation of financial records, supporting documents or commercial transactions.

On the second form of fraud, misappropriation of assets, Tan, Chapple and Walsh (2015) point out that it is much more difficult to identify and measure this type of fraud. Thus, it is noticed that the frauds in the financial reports are more studied, considering that the information is available and accessible.

The third form found is tax fraud, involving the use of various means to avoid paying taxes. According to Compin (2015), we could pursue this definition by explaining that it amounts to theft. Tax fraud is state theft. According to the author, fiscal fraud affects both public finances and the long-term sustainability of economic, social and environmental projects. The cost of tax fraud in the community has raised growing awareness not only of the origins of the current debt crisis but also of the scale of corruption in states that cannot effectively challenge the privileged elites who break the law.

The content on fraud identified in the articles from the Bibliographic Portfolio was synthesized and is presented in Figure 8.

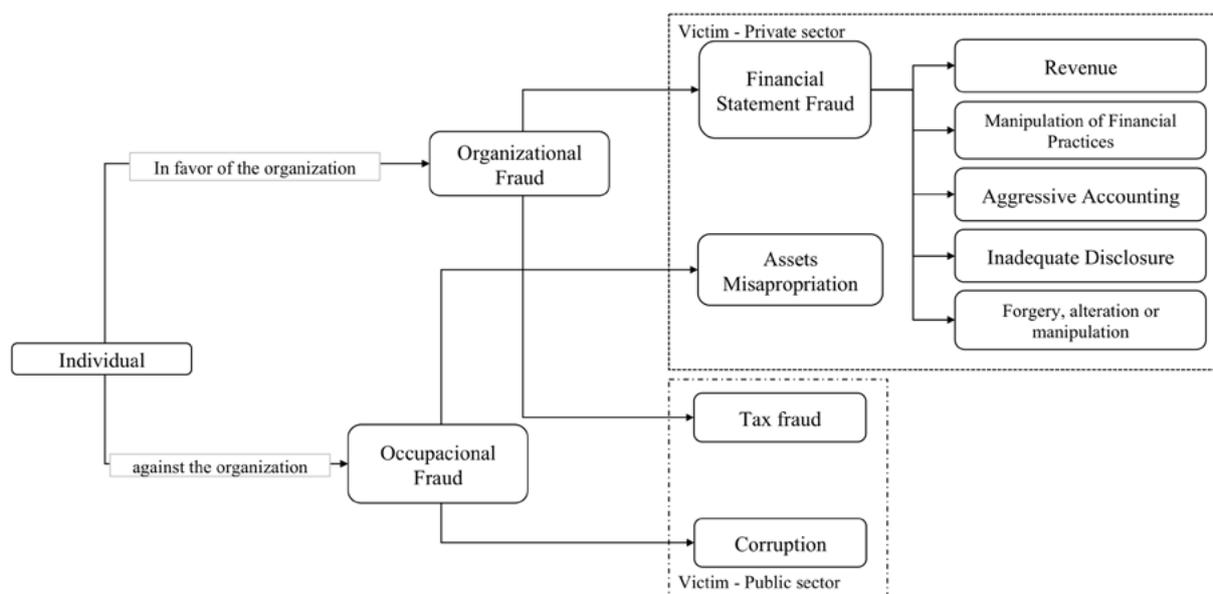


Figure 8. Types of Frauds

Source: elaborated by the authors.

Figure 8 was constructed based on the Bibliographic Portfolio of the articles analyzed. This classification corroborates that of the ACFE Report (2016), though less detailed in frauds involving corruption and misappropriation of assets.

The most common fraud techniques involve improper methods of revenue recognition, usually with the aim of inflating revenues and improper methods to overestimate assets (Gerety & Lehn, 1997; Bonner, Palmrose & Young, 1998; Beasley, Carcello, Hermanson & Lapedes, 2000). Gerety and Lehn (1997) present two examples, which describe a typical violation considered by SEC, McCormick & Company and Tandem Computers Incorporated. In the case of McCormick & Co., the company and the manager of a division were accused of inflating revenues through the systematic deferral of recognition of substantial amounts of promotional and advertising expenses; and, in the second case, recognition of sales revenue in a tax period for goods that were prepared for shipment during that period but were not shipped in a later period. The accused manager was also a member of the Board of Directors.

The common techniques of revenue fraud, according to Beasley *et al.* (2000) included simulated sales, false confirmations, early recognition of revenue before all terms of the sale were completed, conditional sales, terms modified by the issuing of side letters, undue sales cuts, unauthorized remittances, and consignment sales.

Bonner, Palmrose and Young (1998) summarize in three more frequent categories: fictitious revenues, recognition of anticipated income and overvaluation of assets and undervaluation of liabilities.

3. Methodological Procedures

Literature reviews conducted in the traditional way, according to Cooper (2009), have received a number of criticisms due to inaccuracies during the process and the presentation of the results. In other words, traditional literature reviews lack explicit standards. Concerned with these desires, the authors chose to use the ProKnow-C intervention tool (Knowledge Development Process–Constructivist) (S. R. Ensslin, Ensslin, Back & Lacerda, 2013; L. Ensslin, Ensslin, Dutra, Nunes & Reis, 2017).

Based on these procedures, the axes of the research were defined, with the dismemberment of the central theme in subtopics and the respective keywords that represent it. The work was developed in two stages. In the first one, two research axes were defined, being the first Fraud and the second Theory. The keywords that represent each search axis permitted the combination of 48 search expressions. The following delimitations of the search process are highlighted: (i) the keywords were searched in the title; summary and keywords of databases; and (ii) only scientific articles in the English language were considered. Figure 9 summarizes the process of the ProKnow-C intervention tool for both steps, divided into inputs and outputs.

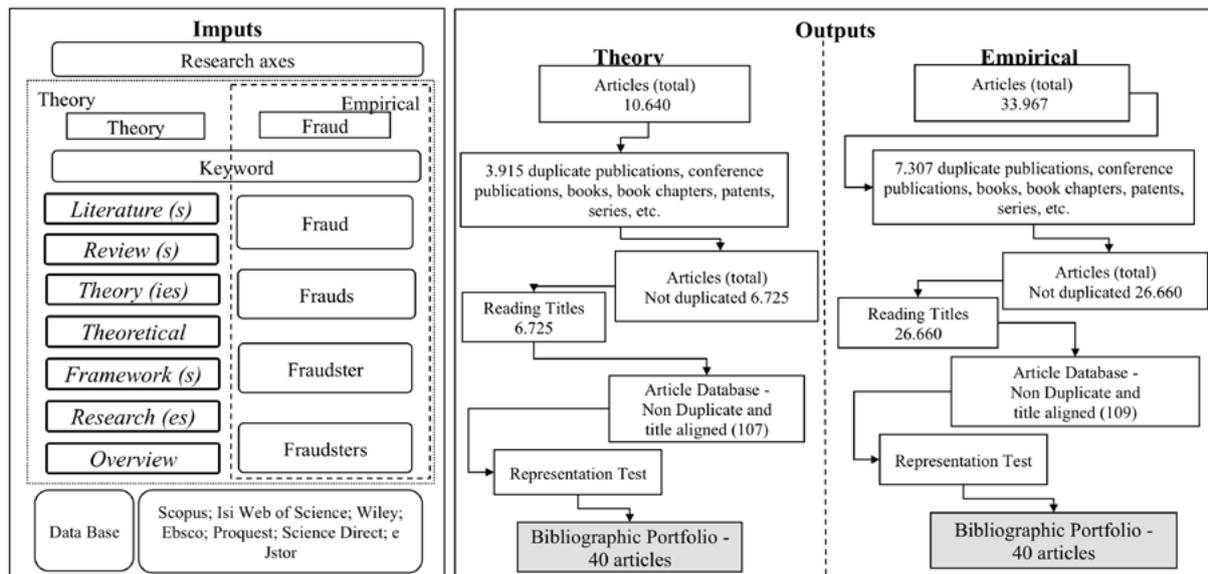


Figure 9. Selection of the Bibliographic Portfolio on the Fraud Theme based on the *ProKnow-C* procedures

Source: elaborated by the authors.

The studies withheld in the article bank after the filtering (107 and 109 articles) passed the test of representativeness carried out through the analysis of the bibliographical references. We chose to analyze the articles that represented a proven academic recognition superior to 90% (of the citations) for both Portfolios. The works published in the last two years have also been included in the portfolio.

Based on the Bibliographic Portfolio (PB) of the literature fragment on the word Fraud, consisting of 80 articles, we moved on to the bibliometrics. The purpose of this phase is to generate knowledge for the researcher on certain characteristics of the subject under investigation (S. R. Ensslin *et al.*, 2013; L. Ensslin *et al.*, 2017).

The characteristics that were evidenced by ProKnow-C in this investigation of fraud were: who are the researchers with a trajectory in this area of knowledge; which are the journals that have devoted space for publications on this subject; research paradigms; and which theories have informed the studies on the fraud topic. The knowledge produced is synthesized in a literature map; the evolution of its elements is discussed; and types and forms of fraud are presented.

4. Bibliometric Analysis

4.1 Productive Authors

In this analytic section, we aimed to identify researchers with a history on the subject and their profile throughout the construction of their professional careers. It should be emphasized that the articles present in the BP that address the historical evolution or the framework on the theme fraud are only theoretical studies or reviews. The first analysis was related to the authors present in the BP of the theoretical studies. In the 40 articles analyzed, in total, 70 authors were found. Of these, 18 articles were written by a single author. In addition, 63 appeared as authors in only one work, that is, based on the delimitation of the researchers in the construction of the Bibliographic Portfolio, 90% of the authors do not have a trajectory in fraud research. Authors such as Richard Riley Jr.; Tina Carpenter; Edwin H. Sutherland; Gregory Trompeter; Keith Jones; Michael Levi; and Tina Dacin were counted more than once, which means that they are present in two or more articles.

Edwin H. Sutherland and James William Coleman authored studies that developed and contributed to the White-Collar Crime theory. David Matza and Gresham M. Sykes contributed to the theory of Neutralization; criminals use a number of justifications to counteract the inevitable guilt. After the individualized analysis of the theoretical BP and its references, they were analyzed together, as shown in Figure 10.

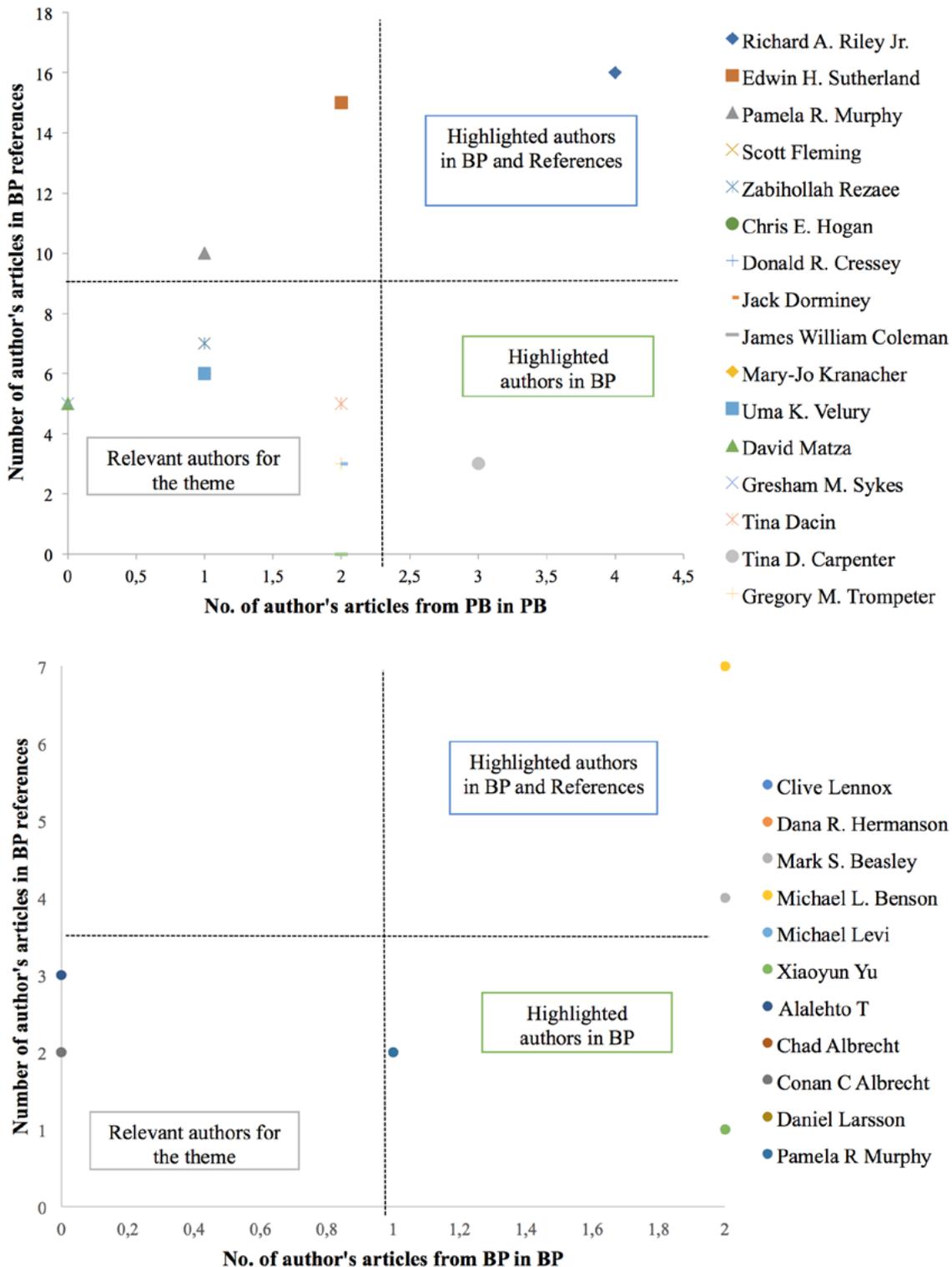


Figure 10. Most productive authors in BP and BP References

Obs.: Highlighted authors in theoretical studies at the top and highlighted authors in empirical studies at the bottom.

Source: elaborated by the authors.

As noticed in Figure 10, only one author stood out in BP and BP references: Richard Riley Jr., who has a consolidated line of research in fraud and audit studies. Edwin H. Sutherland was the sociologist who created the White-Collar Crime thesis, thus showing prominence in the BP references, that is, his work is one of the most cited among the studies identified. It was performed for the identification and analysis of the authors present in the empirical BP.

In the 40 articles analyzed, a total of 86 authors were found. Eleven of these articles were written by a single author, that is, most of the empirical articles were coauthored. Authors such as Clive Lennox, Dana R. Hermanson, Mark S. Beasley, Michael L. Benson, Michael Levi and Xiaoyun Yu were present more than once, that is, they authored two articles. The authors present in two articles show diverse educational background, which confirms the multidisciplinary nature of the theme “fraud” for Science in general. In Applied Social Sciences, Dana R. Hermanson and Mark S. Beasley graduated in accounting, Clive Lennox in economics, and Xiaoyun Yu in finance.

Following the individualized analysis of the empirical BP and its references, they were analyzed together, as shown in Chart 1. As observed in Chart 1, two authors stood out in the BP and, in the BP references, Michael L. Benson, who has a consolidated line of research in white-collar crime studies in Sociology. Mark S. Beasley, an accountant, focuses on research on risk management and auditing. Xiaoyun only stood out in the BP articles. The author focuses on theoretical and empirical corporate finance, addressing corporate governance and fraud.

4.2 Relevant Magazines

In relation to the magazines present in the 40 articles analyzed from the theoretical BP, 28 were found. Of these, 20 journals presented only one article. The journals American Sociological Review and the Journal of Business Ethics stood out in both the number of published articles (4 both) and the impact factor (3,99 and 1,84, respectively).

As shown in Figure 11, the journal American Sociology Research featured prominently in the theoretical BP (4) and theoretical BP references (25), ranking first in both. The journals in the area of Accounting are: Auditing with 8 articles, Issues in Accounting Education with 7 articles and Accounting, Organizations and Society with 4 articles. Two journals are from the area of Criminology: Criminology with 14 articles and Journal of Quantitative Criminology with 4 articles. That is, the areas that deal with the theme “fraud” are Sociology, Criminology, Accounting and Psychology (in the Journal of Business Ethics).

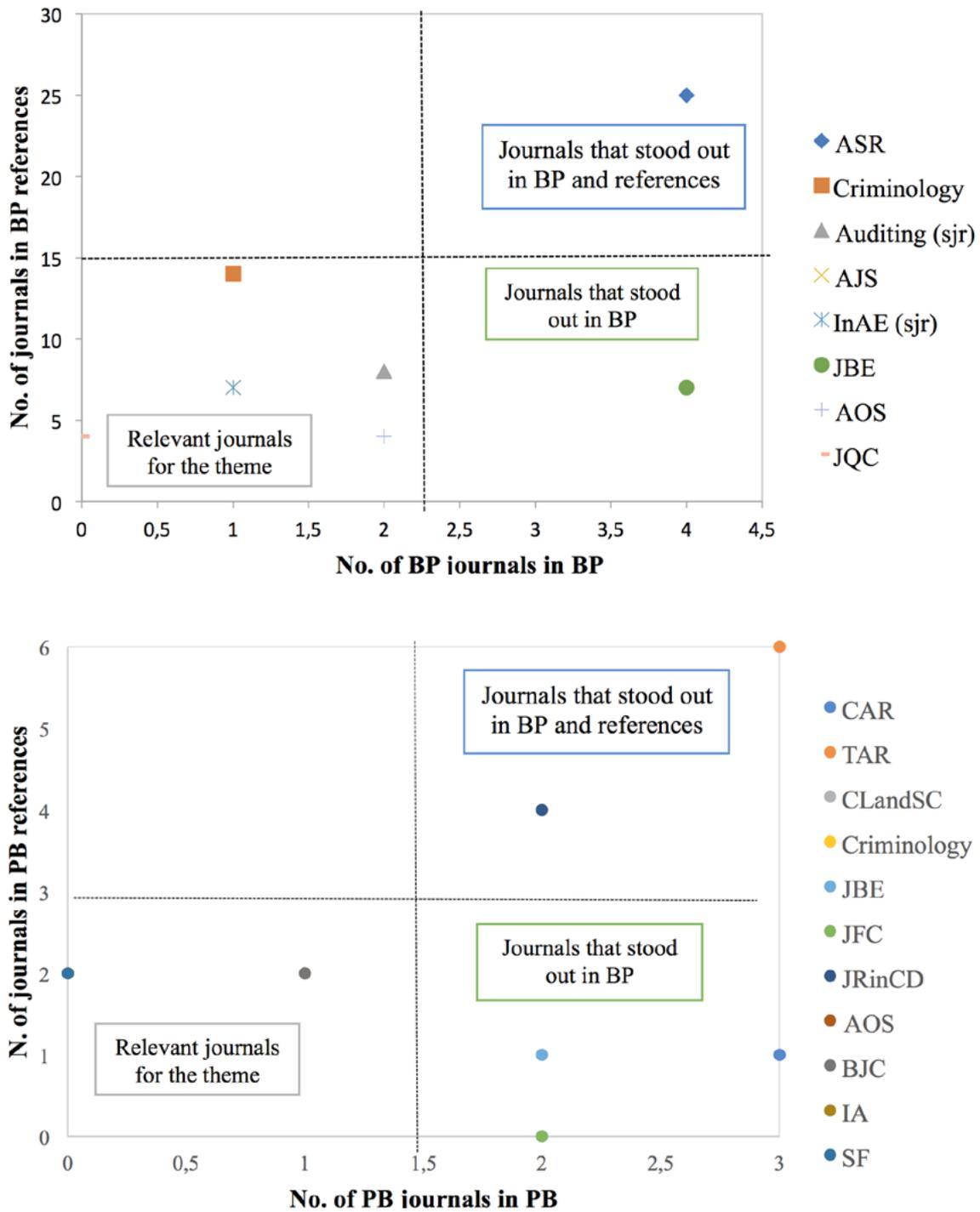


Figure 11. Most relevant journals in BP and BP references

Obs.: Highlighted authors in theoretical studies at the top and highlighted authors in empirical studies at the bottom.

Source: elaborated by the authors.

Figure 11 is divided into four quadrants and sought to demonstrate the highlight that each journal presented, correlating the PB with the PB references. The leading journal, in the BP as well as in the references, was the American Sociological Review. The only prominent journal in the BP was the Journal of Business Ethics, the other journals presented being relevant.

The analysis considered the journals present in the 40 articles from the empirical BP. In total, 30 journals were found, 23 of which presented a single article. The journals Contemporary Accounting Research and The Accounting Review stood out by the number of articles published (6) and both are from the area of Accounting.

In Figure 11, it is shown that The Accounting Review was prominent in the empirical BP (3) and references (6), ranking first in both and being an Accounting journals. The journals identified come from diverse areas: Contemporary Accounting Research and Accounting, Organizations and Society come from Accounting. The other journals cover several themes, interconnecting the areas of Accounting, Finance, Sociology, Criminology and Law. They are: Crime, Law and Social Change, Criminology, Journal of Business Ethics, Journal of Financial Crime and Journal of Research in Crime and Delinquency.

Figure 11 (right side) is divided into four quadrants and aimed to demonstrate the prominence of each journal presented, correlating BP with BP references. The prominent journals, in BP and in the references, were The Accounting Review and Journal of Research in Crime and Delinquency. The journals that only stood out in the PB were: Contemporary Accounting Research, Journal of Business Ethics and Journal of Financial Crime, and the relevant journals for the topic are the others presented. These results allow researchers in the field to direct their readings to these journals, which would be the most productive on the subject.

5. Theories and Research Paradigms

5.1 Basic theories

We also analyzed the theories used in each article from the Bibliographic Portfolio. We found 33 theories, the most cited of which were: Agency theory by Berle and Means (1932) and Jensen and Meckling (1976); and the Theory of White-collar Crime by Sutherland (1940); second rank the General Theory of Crime by Gottfredson and Hirschi (1990); Strain Theory by Merton (1938), with six quotes each, Festinger's Cognitive Dissonance Theory (1957) and the Neutralization Theory by Sykes and Matza (1957). The remainder is displayed in Table 1.

Table 1

Theories present in BP Articles

Theories	Number of articles		Theories	Number of articles	
	T	E		T	E
Agency theory - Berle e Means (1932); Jensen e Meckling (1976)	8	7	Prospect Theory - Kahneman e Tversky (1979)	1	2
A Dynamic Theory of Personality - Kurt Lewin (1935)	1	-	Finance Theory - Fisher (1982)	1	-
Strain Theory - Merton (1938)	8	-	Rational Choice Theory - Kagan e Scholtz (1984)	2	-
Theory of white-collar crime - Coleman (1987) e Sutherland (1940)	10	5	Theory of Planned Behavior - Ajzen (1985)	3	-
Expected Utility Theory - Neumann e Morgenstern (1944)	0	1	Positive Accounting Theory - Watts e Zimmerman (1986)	2	-
Differential Association Theory - Sutherland (1947; 1949)	2	2	Theory of self-regulation - Bandura (1986)	0	1
Learning Theory - Sutherland (1949)	2	-	Self-control Theory - Hirschi e Gottfredson (1987)	2	5
Social Theory and Social Structure -Merton (1938)	2	1	Organizational Theory - Victor e Cullen (1988); Ashforth e Anand (2003)	9	-
Theory of Fraud Triangle - Cressey (1950)	2	4	General Theory of Crime - Gottfredson Hirschi (1990)	2	-
Cognitive Dissonance Theory - Festinger (1957)	6	1	Moral Disengagement Theory - Bandura (1991;1999)	1	-
Neutralization - Sykes e Matza (1957)	6	6	Stewardship Theory - Donaldson e Davis (1991)	1	-
Theories of Deviance (Weisburd, Wheeler, Waring & Bode, 1987)	3	-	Theory of basic human values - Schwartz (1992)	0	1
Differential Opportunity Theory - Cloward and Ohlin (2013)	1	-	Stakeholder Theory - Freeman (1994)	2	-
Theory of Regulation - Stigler (1964; 1971)	2	-	"American Dream" Theory - Messner e Rosenfeld (1994)	1	-
Social Psychology (Milgram, 1963)	1	-	General theory of profit-driven crimes - Naylor (2003)	1	-
Theory of Reasoned Action - Fishbein e Ajzen (1975)	2	-	"Broken Trust" Theory - Albrecht <i>et al.</i> (2004).	1	-
Routine activity theory - Cohen e Felson (1979)	2	-			

Obs: T refers to the articles in the theoretical BP and E to the articles in the empirical BP.

Source: elaborated by the authors.

As noticed, all of these theories can sustain the researcher's approach of the subject "fraud" by the researcher and contribute to different directions. Frauds can be investigated focusing on the individual's behavior through Psychology theories or Agency theories between individuals and organizations, or through interactions between areas, addressing the Fraud Triangle. The other theories identified are displayed in Table 1. The main theory identified in Psychology was Kurt Lewin's Dynamic Theory of Personality (1935). Behavior derives from the coexistence of facts. This coexistence of facts creates a dynamic field, which means that the state of any part of the field depends on all other parts. Behavior depends on the current field rather than the past or the future (Lewin, 2013). Festinger's Cognitive Dissonance Theory (1957) concentrates on how humans achieve inner coherence. An individual who suffers from inconsistency tends to become psychologically uncomfortable and is motivated to try to reduce such dissonance, as well as to

actively avoid situations and information prone to increase it (Festinger, 1962). And in Sykes and Matza's Neutralization Theory from 1957, people are always aware of their moral obligations to comply with the laws and to avoid certain illegitimate acts. Thus, they reason, if a person practices illegitimate acts, (s)he needs to employ some kind of psychological mechanism that hides this need to follow his/her own moral concepts. Five main types of neutralization techniques were identified: denial of responsibility, denial of injury, denial of the victim, conviction of convicts and appeal to higher loyalties (Sykes and Matza, 1957).

The main Sociology theory identified was Social Theory and Social Structure by Robert K. Merton. It was a critique of functionalism. Merton's interest was directed at the different samples of social organization, which led to the discovery of the structure of opportunities.

The main Sociology / Criminology theories identified were Merton's Strain Theory in 1938. The theory states that society puts pressure on individuals to achieve socially accepted goals, though they do not have the means and this leads to tension that can make individuals commit crimes. Sutherland's Theory of White-Collar Crime (1940) says that it is a crime committed by a person of respectability and high social status in the course of his profession. And Sutherland's Differential Association Theory (1949) focuses on how individuals learn to become criminals, but is not concerned with why they become criminals.

The main theory identified in Psychology / Sociology / Criminology was Cressey's Theory of Fraud Triangle (1950). The Fraud Triangle is a model to explain the factors that lead one to commit occupational fraud. It consists of three components that together lead to fraudulent behavior: perceived non-shareable financial need (motivation); opportunity; and rationalization.

The Agency Theory by Jensen and Meckling in 1976 is used to explain the occurrence of specific frauds presented in the accounting reports, in which the principal agent relationship is affected by the fraudulent disclosure of non-truthful information to conceal the criminal acts committed by the fraudster or for the benefit of the organization.

5.2 Research Paradigms

In the Bibliographic Portfolio of theoretical and empirical works, the construction of Positivist Thinking needed understanding based on the social division of labor presented by Adam Smith and later by Auguste Comte and Émile Durkheim.

The positivist paradigm, which was formulated by Auguste Comte and then by Durkheim in "The Social Division of Labor and The Rules of Sociological Method", classical (generally functionalist) sociology considers the subjectivity of social subjects as an obstacle to knowledge, not so much because it is an individual rather than a "collective" expression, but because it is expressed in a language that is not and cannot be that of social science. Burrell and Morgan (1979) use positivism to characterize epistemologies that lead to explanations and predictions of what happens in the social world, looking for regularities and causal relationships.

Durkheim (1894) states that the main objective is to extend scientific rationalism to human conduct. Thus, what we call positivism is nothing but a consequence of this rationalism. In short, it seeks to provide essentially rational explanations of social affairs (Burrell & Morgan, 1979).

The central part of Durkheim's work is his idea that "social facts" exist beyond the consciousness of men and restrain men in their daily activities. According to Burrell and Morgan (1979), the objective was to understand the relationships between these "objective" social facts and to articulate sociology that explained the types of "solidarity" that provide the social cement that holds society together.

The bond of social solidarity which repressive law corresponds to is one whose rupture constitutes crime. Not only among all crimes foreseen by the legislation of one and the same society, but among all crimes that have been or are recognized and punished in different social types, there are surely essential similarities (Durkheim, 1893) because they affect the moral conscience of nations in the same way and produce the same consequence. Therefore, if we want to know what crime essentially consists of, it will be necessary to highlight the characteristics that are identical in all criminological varieties of different social types (Durkheim, 1893).

In this line of thought, one can see that Sutherland (1940) objectively identified the common characteristics of individuals who committed white-collar crime, just like Cressey (1950) identified similar characteristics in creating the Fraud Triangle. Durkheim's work, with its emphasis on the nature of social cohesion and solidarity, for example, provides a clear and comprehensive illustration of a concern with the sociology of regulation (Burrell & Morgan, 1979).

Positivist Criminology is defined as a causal-explanatory science of criminality. From this point of view, crime is conceived as a *natural, phenomenon*, being causally determined.

6. Final Considerations and Research Opportunities

The two theoretical and empirical reviews constituted the Bibliographic Portfolio, composed of 80 articles on the subject of "fraud" which, after the analysis, were synthesized in a Conceptual Map and also permitted the identification of types and forms of fraud.

First, with respect to the bibliometric analysis of the theoretical BP selected, the most productive authors are pointed out: Richard Riley Jr., who has a consolidated line of research in fraud and audit studies; and Edwin H. Sutherland, a sociologist who created the thesis of White-Collar Crime, which is one of the most cited among those identified. In addition to the Accounting journals, the theme frauds has been published in journals from the areas of Sociology, Criminology and Psychology, evidencing the interdisciplinarity of the phenomenon. Of the 30 theories underlying the BP articles, the most recurrent are based on Sutherland's Theory of White-collar Crime (1940) and Cressey's Fraud Triangle Theory (1950).

The bibliometric analysis of the empirical studies demonstrated that the most productive authors were sociologist Michael L. Benson and accountant Mark S. Beasley. Likewise, the journals identified as the most relevant were: The Accounting Review and the Journal of Research in Crime and Delinquency, corroborating the interdisciplinarity of the topic.

In this context, it becomes a challenge for researchers to continue focusing on this issue, which is evolving and remains poorly understood. Recently, discoveries have been made, such as Wolfe and Hermandson (2004), Kranacher, Riley and Wells (2011) and Murphy (2012), which modify the understanding of ex ante and ex post motives. This theoretical approach offers integrative contributions to the different areas of knowledge, such as Psychology, Sociology, Economics, Accounting and others.

The main type of fraud was found to be occupational fraud, in which the individual uses the function performed in the organization for direct (for example, misappropriation of assets) or indirect illicit enrichment (manipulation of accounting practices to achieve results and thus receive the bonus). The other types of fraud derive from the occupational fraud. In the private sector, forms of fraud can occur in financial reports, or tax fraud or misappropriation of assets, according to the evidence from the studies analyzed. When the individual is employed in the public sector, the forms of fraud encountered were the misappropriation of assets, identified as corruption.

Based on a literature review departing from white-collar crime, a concept that has been practically unchanged for nearly 80 years, since Sutherland (1940), it is perceived that the evolution occurred in relation to Cressey's Fraud Triangle (1950). From that point on, its elements have evolved and have recently been criticized and, as a result, there is a lack of consensus on the causes of fraud (Coleman, 1987; Benson & Moore, 1992; Lokanan, 2015) and, mainly, there is evidence that the rationalization element is limited (Murphy, 2012; Schuchter & Levi, 2015; Goossen, Sevä & Larsson, 2016).

The research opportunities found in this literature review are shown in Figure 12.

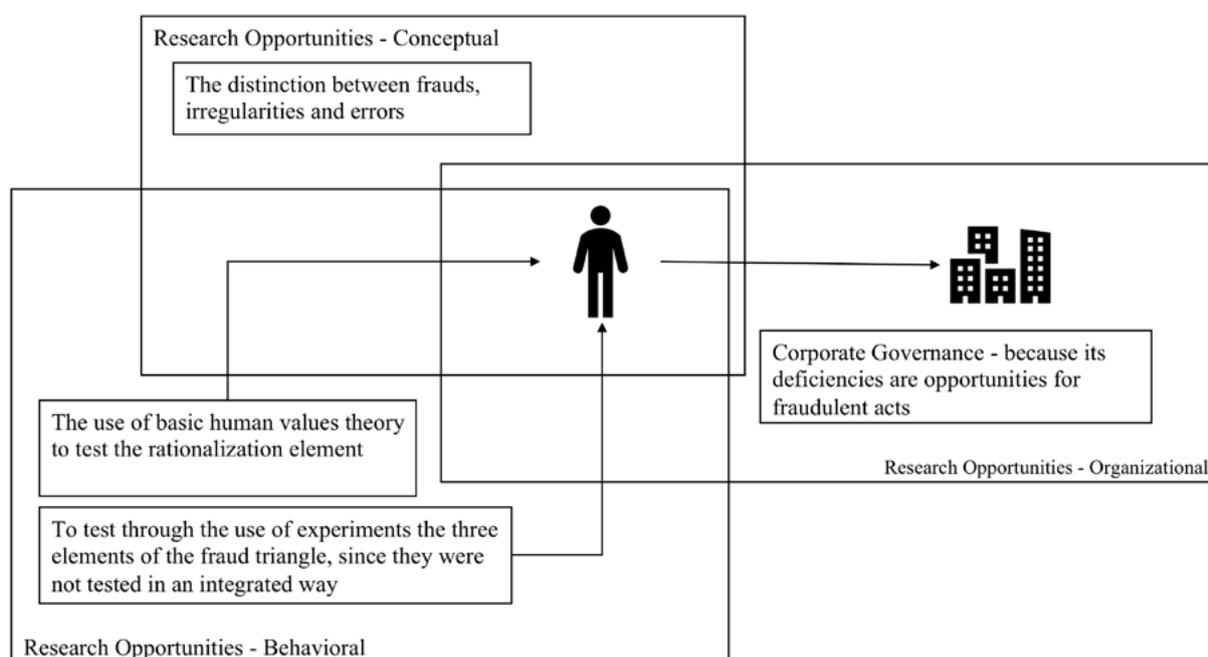


Figure 12. Research Opportunities

Source: elaborated by the authors.

Thus, the following research opportunities are appointed:

the distinction among frauds, irregularities and errors as, among the forms of fraud encountered, inadequate disclosure could also be considered as an irregularity, usually exemplified by the republishing of balance sheets. Hennes, Leone and Miller (2008) point out that this distinction between fraud and irregularities has become confusing over the years.

the use of the Basic Human Values theory to test the rationalization element as, according to the results of Goossen, Sevã and Larsson (2016), basic human values are relevant predictors when attempting to explain white-collar crimes.

testing the three elements of the fraud triangle through the use of experiments, as they were not tested in an integrated way.

These research opportunities would contribute to the improvement of audit standards (AU-C 240 - SAS No. 122; SAS No. 128) and AU Section 316 (SAS No. 99), as they are based on the Fraud Triangle model to create prevention mechanisms. After all, Murphy's (2012) evidence suggests that the third side of the Fraud Triangle could be more clearly explained, as predispositions are not directly related to rationalizations; the results of Schuchter and Levi (2015) showed, in turn, that fraudsters consider only the opportunity as a precondition for acts defined as fraud.

Finally, the portfolio of 80 papers possibly did not document all possible types and forms of fraud, which creates an opportunity for future work to identify and expand this gap.

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