Types of Methods Forensic Accountants Should Use to Detect Financial Misconduct

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Abstract

Fraud has been an ongoing issue in the world. Fraud involves the deceit with intention to gain at the expense of another, illegally or unethically. Over the past 20 years, the government has implemented new laws to protect people from the deceit of others. New systems have been implemented in a company's internal controls to detect fraudulent activities committed by employees. Internal controls help minimize fraud risk in any business. Forensic accountants are a necessary tool to locate or identify potential fraud. Forensic accountants may determine whether fraud has been committed and what pressures led to the action. The importance of forensic accounting has been growing rapidly.

Introduction

Fraud is a global issue that affects organizations in every region and every industry. According to PwC's just-launched Global Economic Crime and Fraud Survey report, more than 70% of businesses have experienced fraud in the past two years. Fraud greatly affects the economy with U.S. organizations losing approximately 7 percent of their revenues to fraud, according to the Association of Certified Fraud Examiners 2008 Report to the Nation on Occupational Fraud and Abuse. Fraud could lead to the collapse of organizations and economic downfall. The global average rate of losses derived from fraud for the last two decades represents 6.05% of gross domestic product (GDP). Losses due to fraud in any company are estimated to account for 3% to 10% (Ahmad et al., 2021).

The demand for forensic accountants has been increasing over the past several years with the increase in fraud rates. In this paper, I will discuss the different techniques forensic accountants may use in detecting fraud. These techniques have changed over time with the recent implementation of data analytics to discover fraud. With technological advances, detecting fraudulent activities has become easier. Along with the implementation of standards and rules that companies must follow, it is much more difficult to get away with such activities. I will be discussing famous cases of fraud involving Enron Corporation, WorldCom, Inc., Bernard L. Madoff Investment Securities LLC, and Al Capone and the various techniques that were used to discover the fraud each has committed.

According to United Nations Sustainable Development Goals, the goal of decent work and economic growth is to promote inclusive and sustainable economic growth, employment, and decent work for all. Fraudulent activities affect economic growth due to extensive losses in companies and economies. To prevent the effect of fraud on economic growth, standards, and laws are needed to prevent companies from committing such acts. Companies need to implement more protection services that stop fraud from occurring.

Literature Review

The Fraud Triangle

The fraud triangle outlines why people commit fraud (Afriyie et al., 2022). The elements of the fraud triangle include pressure, opportunity, and rationalization (Azam, 2018). These three factors must be present for an offense to occur and is a helpful tool for forensic accountants and auditors to discover the motive of offenders in committing fraud (Puspasari, 2016). These elements are described in the American Institute of Certified Public Accountants and international auditing standards (Lederman, 2021).

Pressure

Pressure is one motive behind unethical behavior. The biggest factor contributing to fraud is increased financial pressure. In 2012, 61% of fraud is believed to be because of increased financial pressure (ACFE, 2012). The pressure aspect of the triangle refers to the built-up stress that causes the need to commit fraud. The need to live up to certain standards provides some incentive to commit fraud (Azam, 2018). These incentives could include debt, a luxurious lifestyle, dependence on drugs, and many others (Puspasari, 2016). The pressure could be either financial or non-financial. This could be personal needs, social needs, and economic needs. Everyone who commits fraud has faced some pressure to commit the behavior (Ozili, 2015). The pressure tends to be perceived pressure, meaning the pressure is not real, but the offender believes that there is pressure.

Opportunity

Opportunity in the fraud triangle refers to the circumstances that allow fraud to occur (Ozili, 2015). Examples that provide opportunities for fraud to be committed include weak internal controls and inadequate accounting policies (Azam, 2018). Perpetrators will take advantage of these weaknesses in a company which provides them the opportunity to commit fraudulent actions (Ozili, 2015). These weaknesses allow the manipulation of a company such as manipulating numbers. Increased opportunity tends to be the second reason out of the fraud triangle to commit fraud (ACFE, 2012). In 2012, 24% of fraud is believed to be due to an increased opportunity (ACFE, 2012). The opportunity to commit fraud could be eliminated through the process, procedures, control, and early detection efforts against fraud (Puspasari, 2016).

Rationalization

The rationalization aspect of the fraud triangle refers to an individual's justification for committing fraud (Ozili, 2015). This part involves the excuses people use on why they committed the crime. Under this factor, the ones committing the action believe that the behavior is somehow acceptable (Lederman, 2021). To commit fraud, one must justify their actions as being something other than criminal (Azam, 2018.) The one committing fraud uses excuses to explain why their fraud is not a crime. Rationalization is the lowest cause of the fraud triangle of fraud (ACFE, 2012). In 2012, 10% of fraud was believed to be due to increased rationalization (ACFE, 2012).

Types of Fraud

Fraud has become an increasingly frequent issue in the world (Jofre & Gerlach, 2018). These offenses are carefully planned and concealed. Fraud is considered deception intended to result in financial or personal gain (Ozili, 2015). The illegal act benefits the one who committed the act and harms others involved. It could involve the alteration or manipulation of material financial records, the intentional misstatements or misrepresentation of events, transactions, or accounts, the deliberate misapplication and misinterpretation of accounting standards, the intentional omissions and disclosures, the use of aggressive accounting techniques, and the manipulation of accounting practices (Ozili, 2015). According to Occupational Fraud 2022, 86% of fraud cases are asset misappropriation and 9% are financial statement fraud (Lin et al., 2022).

Misappropriation of assets takes place within the workplace. It happens when someone steals money from the business (Nia & Said, 2015). The one committing the fraud uses their position to commit this type of fraud. Usually, it is done by someone who works with the company's assets and who is trusted to manage them (Nia & Said, 2015).

Financial statement fraud involves the deliberate misrepresentation of a company's financial statements. Financial statements are used to deceive others by increasing or decreasing certain accounts (Ozili, 2015). Changing certain account numbers can make the company look better by improving the company's financial position. The most common type of financial statement fraud is the manipulation of sales. An example scandal of this is Enron. Manipulation of expenses is another type of financial statement fraud. The WorldCom scandal involves this side of financial statement fraud (Ozili, 2015).

Utilitarianism

Utilitarianism is an ethical theory that determines right from wrong based on the outcome and the most ethical choice is the one with the greatest outcome (MacAskill et. Al, 2023). Utilitarianism states that ethical actions maximize the overall good of society and the main belief of utilitarians is that the purpose of morality is to improve life by increasing the good and decreasing the bad (Nathanson, 2014).

Jeremy Bentham is the father of utilitarianism (MacAskill et. Al, 2023). He argued that actions should be judged as right or wrong based on the effect of the action, whether it increases or decreases the overall well-being of an individual (MacAskill et. Al, 2023). If the consequences of the action are good, then the action is considered moral. If the consequences of the action are bad, then the action is deemed immoral. We as humans desire what is pleasurable and avoid what is painful (D'Olimpio, 2019).

Utilitarianism is closely associated with consequentialism. The theory of utilitarianism is a form of consequentialism (Schefczyk, 2019) which is a theory that determines whether something is good or bad depending on its outcomes. The difference between these two theories is that consequentialists care about consequences overall while utilitarians care about consequences concerning well-being or happiness (Nathanson, 2014).

Another theory utilitarianism is closely associated with is hedonism (MacAskill et. Al, 2023). Hedonism states that the only good thing is pleasure or happiness. Utilitarianism and hedonism are both theories that want to maximize the good. In utilitarianism, the desired outcome is the overall good of society. In hedonism, the desired outcome is pleasure or happiness (Nathanson, 2014).

Since utilitarians believe an action is good or bad based on the outcome, then the action of fraud could be deemed morally right depending on its consequences (MacAskill et. Al, 2023). If the outcome of the fraud that has been committed results in negative consequences, then the action would be deemed morally wrong (Nathanson, 2014). For utilitarians, fraud is neither bad nor good. What makes it good or bad is based on the consequences it produces.

Utilitarianism is broken down into two parts: act utilitarianism and rule utilitarianism (Nathanson, 2014). In both concepts, the goal in evaluating actions is to create the best results possible.

Act Utilitarianism

Act utilitarians focus on the effects of individual actions (Nathanson, 2014). This type of utilitarianism argues that the utilitarian principle should apply to individual acts and not classes of similar actions (Nathanson, 2014). Act utilitarianism states that to get the most utility out of an action, you must maximize the utility of each individual action instead of grouping actions (Nathanson, 2014). You cannot group different actions as a whole because each individual action has different effects and consequences. You must determine if an action is right or wrong based on the individual effects and consequences not the effects of a group of actions’ consequences

(Nathanson, 2014). Act utilitarianism understands that rules may be useful in certain cases, but act utilitarians believe that if better comes out of violating a rule, then you should go against the rule (Nathanson, 2014). The morality of an action is based on how it affects the world. An ideal action produces the most net happiness for people.

Rule Utilitarianism

Rule utilitarians focus on the effects of types of actions (Nathanson, 2014). To maximize utility, there must be a set of moral codes that contain rules. The best outcomes from an action will come from following a set of rules (Nathanson, 2014). Rule utilitarians judge actions on whether they conform to the rules or not. There must be a set of rules to get the most beneficial results and the best overall good for society (Nathanson, 2014). We should follow whatever moral rules will have the best overall impact. How these rules are determined is based on whether the existence of the rule increases the greater good of other rules or no rules (Tardi, 2022). Rule utilitarianism is based on reoccurring issues that are present in the world. According to this type of utilitarianism, rules are a necessity to deal with certain issues that are reoccurring.

Role of Forensic Accountants vs Auditors

Forensic accounting and auditing are closely related fields as both deal with audits. Although similar, these two fields have different purposes.

Forensic Accountants

Forensic accountants are necessary to detect fraud and are useful in identifying fraudulent offenses by analyzing financial data and looking for the evidence of a crime.

Forensic accountants must use different types of skills and knowledge to find fraud (Half, 2021). These include accounting knowledge, auditing knowledge, and analytical skills. They must understand why one may commit these crimes and figure out how they did it.

Forensic accounting has been created as a new tool for fraud prevention and detection (Azam, 2018). They are essential to the legal system as they provide their expert services in fraudulent crimes (Curtis, 2008). Forensic accounting involves understanding, identifying, detecting, and communicating fraud patterns to help in investigative processes (Ozili,2015).

Auditors

Compared to forensic accountants, an auditor's job is to review and verify the accuracy of financial records and ensure that companies comply with tax laws (Waddell, 2022). In the auditing process, auditors may discover discrepancies in the accounting methods. Auditors must follow the standards of generally accepted accounting principles (GAAP) to assess financial operations and ensure that a company is running efficiently (Waddell, 2022). The financial records that auditors follow is an audit trail which is any accounting records or other financial data that are tracked or traced in a company (Waddell, 2022). The SEC requires the financial records of all public companies to be examined by external, independent auditors (Waddell, 2022). These records must follow the official auditing procedures which were established by the International Auditing and Assurance Standards Board (IAASB).

Differences between forensic accountants and auditors

The main difference between forensic accountants and auditors is that forensic accountants have a specific purpose of uncovering fraud. Whereas auditors are meant to determine if a company's financial statements are accurate and comply with laws (Waddell, 2022). Forensic accountants have additional expertise in uncovering and documenting fraud (Ozili,2015). These types of accountants must also obtain criminal and civil skills and knowledge. Forensic accountants must be knowledgeable in gathering evidence of fraud, interviewing, and testifying as expert witnesses if needed (Ozili,2015).

Investigative Techniques

To detect any type of fraud, forensic accountants must obtain certain investigative techniques (Oyedokun, 2016). Forensic accountants must obtain general knowledge in the accounting field as well as a CPA certification. When dealing with criminal behaviors such as fraud, forensic accountants must also be skilled in other various investigative techniques such as auditing, analyzing financial statements, data analytics, and interviewing (Oyedokun, 2016). They must also be detail-oriented, and obtain communication skills, and problem-solving skills. Forensic accountants work within the legal field so they must obtain knowledge of criminal law (Oyedokun, 2016).

Auditing

As mentioned before, the auditing field in accounting is very similar to the forensic accounting field (Waddell, 2022). Auditing ensures that companies are following the standards and laws that were put in place to keep companies' financial records accurate and fair (Akman et al., 2020). Auditing is completed by a certified auditor who ensures that the company’s financial statements are correct. They must obtain reasonable assurance about whether the financial statements are free of material misstatements which are inaccuracies and fraudulent activities (Akman et al., 2020). Auditors may detect fraud early while completing their timely audit.

External audit vs forensic audit

An external audit is a service that an auditor would perform. An external audit is focused on the compliance and performance of a company and is performed by someone outside of the company (Akman et al., 2020). The SEC requires that all public companies have an external audit prepared due to the Sarbanes-Oxley Act (Waddell, 2022). External auditors must evaluate the internal controls and financial reporting of public companies in the United States and ensure that the accounting records are accurate, complete, and prepared in accordance with GAAP (Akman et al., 2020). These statements must be prepared and presented fairly with the company's financial position.

Compared to an external audit, a forensic audit is performed to examine a company's financial records to provide proof to be used for legal proceedings in court (Waddell, 2022). A forensic audit is used to uncover criminal behavior and is performed by a forensic accountant for the sole purpose of detecting fraud. To perform a forensic audit, the forensic accountant must have knowledge of both accounting and auditing (Waddell, 2022). These audits are used to prosecute a party for fraud, embezzlement, or any other financial crimes. At the end of the investigation, the evidence found in a forensic audit could potentially be used in court.

Generally Accepted Accounting Principles (GAAP)

GAAP is a set of accounting rules, requirements, and practices issued by the Financial Accounting Standards Board (FASB) and the Governmental Accounting Standards Board (GASB) (OJP.gov). Following GAAP ensures companies' financial information is consistent and accurately reported (Curtis, 2008). GAAP is the standard that has been adopted by the U.S. Securities and Exchange Commission and is required to be used in auditing practices (Curtis, 2008).

Sarbanes-Oxley Act (SOX)

The Sarbanes-Oxley Act is a federal act that was passed in 2002 to improve auditing and public disclosure in response to several accounting scandals (Curtis, 2008). The scandals that brought out the creation of SOX were WorldCom and Enron. Due to these scandals, the U.S. Congress decided to implement this act to help protect investors from fraudulent financial reporting by companies (Curtis, 2008). SOX has created new rules for accountants, auditors, and corporate officers and has imposed more rigorous recordkeeping requirements. SOX has been created to decrease the occurrence of fraudulent activities within a company (Curtis, 2008).

Analysis of financial statements

Fraud detection could occur while analyzing financial statements. Forensic accountants must analyze the financial statements of companies to uncover any fraud or financial crimes (Ozili, 2015). This process may help assess whether financial statements reflect a company's true performance and position and if it does not, fraud has most likely occurred (Akman et al., 2020). Analyzing financial statements may expose fraudulent financial reporting or the misappropriation of assets which are two of the main types of fraud companies may commit (Ozili, 2015). Fraudulent financial reporting is used to show that a company's financial performance is better than it is while asset misappropriation occurs when someone steals from the company. Asset misappropriation is one of the most prevalent forms of fraud (Ozili, 2015).

Interviewing

Most investigations whether it involves fraud or other criminal acts, always use interviewing to get to the bottom of the crime (Bobițan & Dumitrescu, 2015). Interviewing is a very useful source of knowledge that forensic accountants must gain to be able to conduct interviews with different people involved in a case. Interviews could help forensic accountants obtain information and knowledge that could identify key issues in an investigation (Bobițan & Dumitrescu, 2015). The interviewing process is a critical part of a forensic investigation as it can assist in answering basic questions and uncovering important information about a case (Bobițan & Dumitrescu, 2015).

To perform an effective interview, forensic accountants must follow several steps. First, the location of the interview must be in a private and comfortable area (Bobițan & Dumitrescu, 2015). Forensic accountants must want the interviewee to be comfortable to create an atmosphere where the interviewee will talk. The interviewer must also be respectful, peaceful, and straightforward (Bobițan & Dumitrescu, 2015). Before any interview, the forensic accountant must create a plan and develop an overall strategy to ensure that the interview occurs effectively. The most important type of interview questions the forensic accountant should involve introductory questions, informational questions, open questions, and closed questions (Bobițan & Dumitrescu, 2015). The purpose of a forensic accountant conducting an interview is to obtain any background information about the subject of the investigation (Bobițan & Dumitrescu, 2015).

Data Analytics

With the increase in technology over the past decade, data analytics has been implemented in a variety of fields including accounting (Waddell, 2022). Data analytics involves analyzing data to come to an overall understanding and conclusion. In the forensic accounting field, data analytics may be used in uncovering fraud in financial data (Oyedokun, 2016). The goal of using data analytics in detecting potential fraud is by spotting any anomalies or deviations from "normal" behavior patterns (Rezaee, 2018. Data analytics in forensics combines advanced analytics with forensic accounting and investigative techniques to identify potential anomalies (Oyedokun, 2016). Organizations that use a form of data analytics in their systems can reduce their fraud losses by an average of 54% and detect scams in half the time, according to the

Association of Certified Fraud Examiners' *Report to the Nations* (MCMCPA, 2022). As data analytics has advanced, it is now possible to examine large amounts of data to uncover patterns, relationships, correlations, and anomalies in a shorter amount of time (Rezaee, 2018). Data analytics is beneficial in cutting down the time to uncover fraud compared to using conventional methods where it may be impossible to find what data analytics can (Waddell, 2022). Various forms of data analytics have been implemented in the forensic accounting field such as different types of machine learning modeling, text analytics, and network mapping and analytics (Rezaee, 2018.

Benford's Law

Benford's Law is a popular form of data analytics in the forensic accounting field that can test for fraudulent activities (Gorenc, 2020). This law describes the relative frequency distribution for leading digits of numbers in datasets. Benford's law says that the likelihood of digit occurrence in different places in a number decreases logarithmically as the digit value increases (Gorenc, 2020). It is a method of determining whether investigated financial statements contain unintentional errors or fraud. Counterfeit numbers have a slightly different pattern than valid or random samples (Gorenc, 2020). When committing fraud, people most likely choose random numbers in a uniform pattern (Gorenc, 2020). Auditors have successfully applied this law in their work.

Hypotheses

H1: Forensic accountants must use data analytics to discover any fraudulent activities.

H2: Investigative techniques are necessary for a forensic accountant to discover fraudulent activities.

Method

Subjects

The companies and people that I will be using in my study are Enron Corporation, WorldCom, Inc., Bernard L. Madoff Investment Securities LLC, and Al Capone. I chose these companies and people to use in my research because they are popular cases involving accounting fraud. Each scandal was discovered by either auditors or forensic accountants. I will be researching those involved in these scandals and how these scandals were detected. I will research the consistent techniques used to discover the fraudulent activities in each scandal.

Enron Corporation

Enron Corporation was an American energy, commodities, and services company founded by Kenneth Lay. Their revenue was about $100.8 billion. Enron filed for bankruptcy in 2001 and ceased operations in 2007. Before the bankruptcy, Enron employed approximately 20,600 staff. Enron's scandal involved using special purpose entities to hide debt off its balance sheet and mark-to-market accounting to overstate revenue.

WorldCom

WorldCom was a telecommunications company. Their revenue was $20.6 billion in 2005. WorldCom was in financial trouble and used unethical accounting techniques to hide their losses. Doing this inflated their profits. WorldCom reduced its operating expenses by improperly releasing certain reserves held against operating expenses. They also improperly reduced its operating expenses by recharacterizing certain expenses as capital assets (SEC). They filed for bankruptcy in 2002.

Bernard L. Madoff Investment Securities LLC

The Madoff investment scandal was a major case of stock and securities fraud discovered in late 2008. Bernie Madoff was an American financier who was involved in the largest Ponzi scheme in history. He paid returns on investments from the capital derived from new investors. Bernie Madoff was convicted of securities fraud, mail fraud, wire fraud, money laundering, falsified statements, and tax evasion. He was sentenced to 150 years in federal prison.

Al Capone

Al Capone was an American gangster and businessman. He was known for running a multi-million-dollar Chicago operation in gambling, bootlegging, and prostitution in the 1920s. He was convicted of five counts of income tax evasion in 1931 and was sentenced to 11 years in federal prison. Al Capone was caught by forensic accountant Frank J. Wilson.

Measures

The variables I will measure include the data analytics, fraud, and investigative techniques present in each case.

Variable 1: Data Analytics

I will research the existence of data analytics in each case. This will include using technology in analyzing large sets of data to discover any fraudulent activities. I will research whether this technique was used in the detection of fraud in each case.

Variable 2: Fraud

I will research the different types of fraud that were committed in each case and see if there are certain techniques used for the different types of fraud.

Variable 3: Investigative Techniques

I will research other investigative techniques that forensic accountants would use to detect fraudulent activities. These techniques include auditing, analyzing financial statements, and interviewing. I will discover if there are any consistent techniques that are used to detect fraud.

Table 1: Hypothesis, Variables, and Statistical Analysis					
Hypothesis	Variables			Hypotheses & Variable Relationships	Statistical Tests
	Data analytics (DA)	Fraud (F)	Investigative techniques (IT)		
H1: Forensic accountants must use data analytics to discover any fraudulent activities.	DA	F		DA=F	correlation
H2: Investigative techniques are necessary for a forensic accountant to discover fraudulent activities.		F	IT	IT=F	correlation
Adapted from: Rudestam, K.E. & Newton, R.R. (1992). Surviving Your Dissertation. Newbury Park, California: Sage Publications, Inc. page 138.					

Procedure

The procedures I used to find my data was Business Source Premier in the Wagner College database. Using this, I was able to find many articles about each of the scandals I plan on using. I was able to find the background of these scandals in this database.

I also looked into the SEC homepage to find information about each scandal. Here, I was able to find reports of the investigations of the different scandals. While researching the role of forensic accountants in these scandals, I was able to find sources from govinfo.gov. This is where government information is stored. I was able to find more details about the cases under this website. I also looked at articles that were released around the time the scandals came out. I was able to gather information about the process involved in the scandals.

The statistical procedures I will use to analyze my data is read over the information about each case. I will analyze the investigation process of each case and determine if there are any consistent investigative techniques used. I will take notes on each case of how the scandals were brought about and determine if my theory is true or not. I will determine if data analytics and different investigative techniques are used in detecting fraudulent activities.

Table 2: Detail About Variables					
Data	Variables				
	Data Analytics	Fraud	Investigative Techniques		
			Analysis of financial statements	Auditing	Interviewing
Instrument / Survey	Enron WorldCom Bernie Madoff Al Capone	Enron WorldCom Bernie Madoff Al Capone	Enron WorldCom Bernie Madoff Al Capone		
Author / Publisher	U.S. Securities and Exchange Commission Federal Bureau of Investigation	U.S. Securities and Exchange Commission Federal Bureau of Investigation	U.S. Securities and Exchange Commission Federal Bureau of Investigation		
Type of data	Qualitative	Qualitative	Qualitative		
Range of scores	N/A	N/A	N/A		
Adapted from: Rudestam, K.E. & Newton, R.R. (1992). Surviving Your Dissertation. Newbury Park, California: Sage Publications, Inc. page 140.					

Results

Variable 1: Data Analytics

Table 3 contains that data on Benford's Law. The table shows the probability that percentage of time digits 1 through 9 are expected to occur in the first position. Benford's Law maintains that the numeral 1 will be the leading digit in a genuine data set of numbers 30.1% of the time, the numeral 2 will be the leading digit 17.6% of the time, and so on.

Table 3

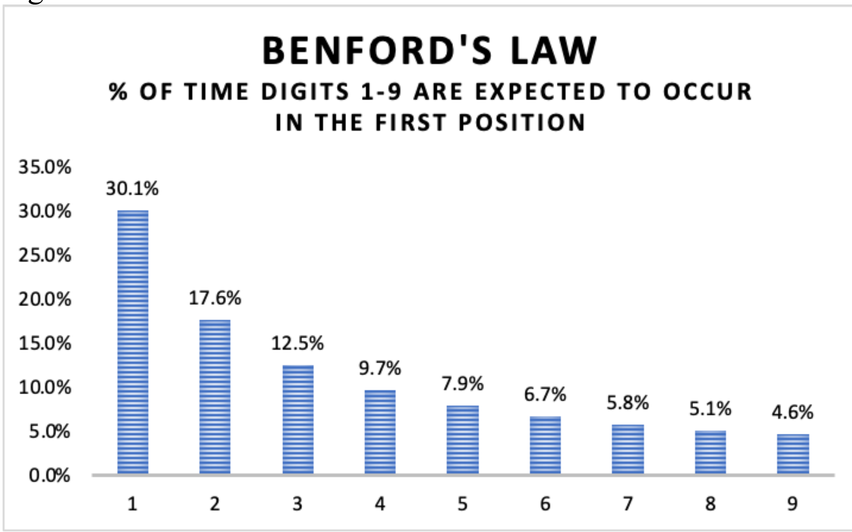
Benford's Law

First Digit	Probability
1	30.1%
2	17.6%
3	12.5%
4	9.7%
5	7.9%
6	6.7%
7	5.8%
8	5.1%
9	4.6%
Total	100%

Source: Journal of Accountancy

Figure 1 contains that data on Benford’s Law. The chart shows the probability that percentage of time digits 1 through 9 are expected to occur in the first position. Benford’s Law maintains that the numeral 1 will be the leading digit in a genuine data set of numbers 30.1% of the time, the numeral 2 will be the leading digit 17.6% of the time, and so on.

Figure 1: Benford's Law



Source: Journal of Accountancy

Variable 2: Fraud

Table 4 contains data on the percentage of different types frauds committed in 2021. Mail or wire fraud and fraud involving false statements being the top two most common types of fraud.

Table 4

Types of Fraud Offenses in 2021

Type of Fraud	Percent of Offenses in 2021
Mail or Wire	45%
False Statements	30%
Bank Fraud	10%
Healthcare	10%
Other	5%

Source: United States Sentencing Commission (2022)

Figure 2 contains data on the percentage of different frauds committed in 2021. Mail or wire fraud and falsified statements being the top two most common types of fraud.

Table 5 contains data on the types of fraud Enron Corporation, WorldCom, Inc., Bernard L. Madoff Investment Securities LLC, and Al Capone committed.

Table 5
Types of Fraud Committed by Bernie Madoff, Enron, Al Capone, and WorldCom

Scandal	Securities Fraud	Mail Fraud	Wire Fraud	Money Laundering	Tax Evasion	Fraudulent Financial Reporting
Bernie Madoff	X	X	X	X	X	X
Enron	X	X	X	X		X
Al Capone				X	X	
WorldCom	X					X

Sources: U.S. Securities and Exchange Commission (2010), Federal Bureau of Investigation (2005)

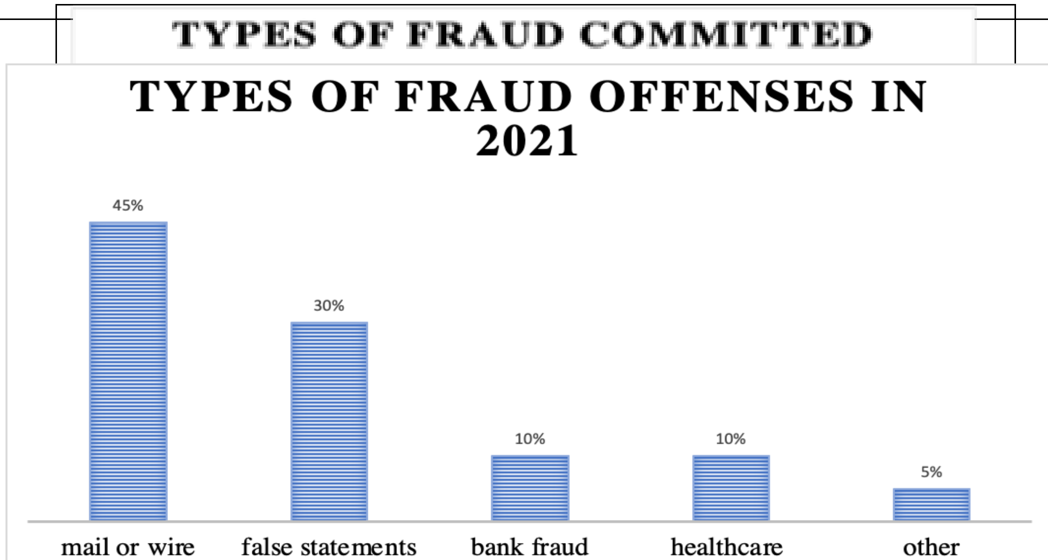


Figure 3: Types of Fraud Committed by Bernie Madoff, Enron, Al Capone, and WorldCom

Figure 2: Types of Fraud Offenses in 2021

Source: United States Sentencing Commission (2022)

Source: United States Sentencing Commission (2022)

Figure 3 contains data on the types of fraud Enron Corporation, WorldCom, Inc., Bernard L. Madoff Investment Securities LLC, and Al Capone committed.

Variable 3: Investigative Techniques

Table 6 contains data on the types of investigative techniques used during the investigations of Enron Corporation, WorldCom, Inc., Bernard L. Madoff Investment Securities LLC, and Al Capone committed.

Table 6

Investigative Techniques Used During the Investigations

Scandal	Data Analytics	Interviewing	Auditing	Analysis of Financial Statements
Bernie Madoff	X	X		X
Enron		X	X	X
Al Capone		X		X
WorldCom		X	X	X

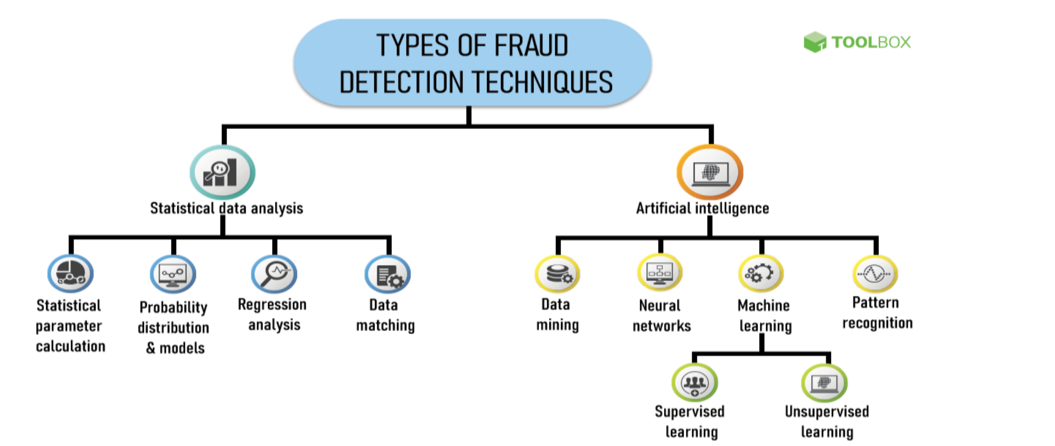
Sources: Securities and Exchange Commission, Federal Bureau of Investigation, The Business Journals

Figure 4 consists of the different types of fraud detection techniques that forensic accountants may use. These techniques include various statistical data analysis techniques and various artificial intelligence techniques.

Discussion

H1:

Figure 4: Types of Fraud Detection Techniques



Source: Dorrell & Gadawski, (2012).

Forensic accountants must use data analytics to discover any fraudulent activities.

My hypothesis states that to discover any fraud, forensic accountants must use data analytics. I examined this by analyzing 4 different cases of fraud. I found that in these 4 cases, data analytics was not a necessary technique for discovering the fraud. Only one case used data analytics. This is shown in Table 6. This may be due to the cases I analyzed taking place either in the 1900s or the early 2000s. With the lack of technology, data analytics may not have been popular around the time that these investigations were going on. Researching data analytics in today's age, I found Benford's Law. Forensic accountants use this type of data analytics to investigate financial statements. This is shown in Figure 1 and Table 3. These show the probability that digits 1-9 are expected to occur in the first position. The purpose of Benford's Law in forensic accounting is to discover anomalies in data. Forensic accountants work with large amounts of data in investigations, making data analytics a helpful tool for discovering fraudulent activities.

H2: Investigative techniques are necessary for a forensic accountant to discover fraudulent activities.

The results from Table 6 show that different techniques were used in the discovery of fraud in the Bernie Madoff case, the Enron case, the Al Capone case, and the WorldCom case. The investigative techniques that were analyzed included interviewing, auditing, and the analysis of financial statements. Table 6 shows that interviewing and analyzing financial statements was used in 100% of the cases that were reviewed. Auditing was used in the Enron case and the WorldCom case.

My hypothesis was also partially disproven. One of the techniques examined was auditing. Further research revealed that forensic accountants do not perform internal audits. This is done by auditors, not forensic accountants. Auditing is present in the Enron case and the WorldCom case. WorldCom and Enron were both exposed through an internal audit which was done by the company's internal auditors. Forensic accountants may perform a forensic audit which is not the same as an internal audit. Forensic accountants are used to find any illegal financial activity.

Conclusion

General Conclusions

This study has shown how investigative techniques such auditing, analyzing financial statements, and interviewing skills are necessary for a forensic accountant to uncover fraud. This study has also disproven the need for data analytics since the cases of fraud that I decided to study occurred before these technological advances. Data analytics is a newer tool that has been implemented in the forensic accounting field to assist in discovering fraudulent misconducts. Data analytics is an easier and faster way for forensic accountants to discover fraud. These techniques are necessary as well as many other investigative skills when it comes to investigating fraud.

Every case that was study in this paper relates to the fraud triangle and utilitarianism. Everyone that was involved in each case had a motive behind what they were doing whether it was opportunity, pressure, or rationalization. Each case also affected many people greatly and affected the whole economy. The actions in these cases were deemed morally wrong because of the negative consequences that came about.

Implications for Practice

People in the forensic accounting field should be aware of the evolving techniques that could assist them in an investigation. Colleges and Universities should implement more courses relating to the forensic accounting field to help future forensic accountants develop the skills and knowledge they will need. Many schools do not have such course and only teach this topic as a unit in a different accounting course. Forensic accounting should be more available and advertised to students who are pursuing a career in accounting.

Implications for Research

Researchers should analyze the various techniques that could be used to detect fraudulent misconducts to determine which techniques are the most effective in this field. A more in-depth study on what techniques and skills are the most effective when it comes to fraud detection would help forensic accountants greatly in the future of this field. There has been an increase in the different techniques that forensic accountants may use to detect fraud. Figuring out which techniques are the fastest and most effective would help forensic accountants in a criminal investigation.

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