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Walden University

College of Management and Technology

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Belma A. Borrás Osorio

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Walden University
2020

Abstract

Internal Business Control Systems in Small Puerto Rican Retail Businesses

by

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MBA, La Salle University, 1988

BBA, University of Puerto Rico Cayey, 1984

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

March 2020

Abstract

Small businesses' vulnerability to financial losses brought about by employee theft is higher than for larger organizations. Small business owners are concerned about occupational fraud, as the annual average loss from fraud for small business owners in the United States was \$150,000 per incident. Grounded in the fraud triangle theory and COSO Internal Control Integrated Framework, the purpose of this quantitative correlational study was to examine the relationship between the degree of segregation of duties, attitude toward internal controls, and the internal control system in small gas and convenience stores in Puerto Rico. Data were collected from 129 small business owners and managers of gas and convenience stores located in Puerto Rico. The results of the multiple regression analysis were significant, $F(2, 126) = 49.158, p < .01, R^2 = .438$, indicating the degree of segregation of duties and the attitude toward internal controls, significantly predicted the internal control system. The implications for positive social change included the potential for a better understanding of the existing relationship between the degree of segregation of duties, attitude towards internal control, and internal controls. Thus, small business owners and managers could become interested in engaging in a low-budget internal control system for their business to reach their goals and diminish the occurrence of occupational fraud.

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Dedication

I dedicate this study to my mother and late father, Julia Osorio and José M. Borrás. My mother always encouraged me to be an honest, compassionate and humble human being. In her 94 years of age, she continues to be an example of perseverance and unconditional love. My father instilled in me the passion for education. He was a community leader, and through his work, I had extraordinary experiences which have influenced my professional and missionary work. They always told their six children to be the best professionals and human beings we could be. I was blessed to be raised by such caring and responsible parents.

Throughout this journey, there were times that I needed support and encouragement. My family and friends gave me the support I needed to regain strength and move on. As I conclude this journey, my faith has strengthened, I give the Glory to God for this accomplishment.

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Section 1: Foundation of the Study

Introduction

Fraud remains an international problem, affecting small and large businesses around the world (Sow, Basiruddin, Rasid, & Husin, 2018). The objective of an internal control system is to assist the organization in controlling its risks to realize the organization's purposes and to maintain its operation (Zakaria, Nawawi, & Puteh Salin, 2016). Internal control weaknesses can result in fraudulent events (Zakaria et al., 2016). Employee fraud disturbs business operations, costs the corporation additional time and assets, and damages the corporation's image (Omar, Nawawi, & Salin, 2016). Occupational fraud is detrimental to an organization because the business could incur excessive operating losses and thus impact its sustainability in the future (Omar et al., 2016). The concern of business owners and managers is to improve the internal control system as a fraud prevention and detection technique.

Background of the Problem

Fraud incidences can result costly to society, regardless of the increasing awareness between regulators, researcher, and experts (Andon, Free, & Scard, 2015). The 2018 Global Economic Crime and Fraud Survey conducted by Price Waterhouse and Coopers (2018) revealed the incidence of fraud and economic crime in 3,542 (49%) global organizations' respondents from 123 territories, including 52% senior officials of undisclosed businesses, 42% of which were publicly listed companies, and 55% of which represented organizations with more than 1,000 employees. Fraud is a negative aspect of an organization; therefore, many business owners and managers choose to ignore fraud occurrence incidences (Kramer, 2015). Fraud continues to be a problem for small businesses because they typically have limited resources to prevent,

detect, and recuperate from fraud incidents (Association of Certified Fraud Examiners [ACFE], 2018).

While occupational fraud is a critical problem for all organizations, it can be more harmful to small businesses. Officials of the ACFE stated in the 2018 *Report to the Nations on Occupational Fraud and Abuse* that 1,345 of fraud examiners surveyed reported that 5% of their annual revenues were lost to fraud incidences, resulting in losses near \$4 trillion applying the 2017 assessed gross world product of \$79.6, trillion (ACFE, 2018). Significant findings of the 2018 *Report to the Nations* revealed that small businesses lost close to twice as much of operating revenues per fraud scheme as large companies because of weaknesses in their internal control system (ACFE, 2018). Small businesses' inadequate planning, organization, and internal control operating procedures led to financial mistakes (Frazer, 2016). Segregation of duties is a key element of an internal control system, where different employees authorize transactions, record transactions, and keep custody of the resulting properties (Stone, 2016). Small business owners and managers need to comprehend the key elements that cause occupational fraud. This study sought to give small business owners and managers an understanding of the relationship between the degree of segregation of duties, the attitude toward internal controls, and the internal control system as prevention and detection tools for occupational fraud.

Findings of the 2018 *Report to the Nations* disclosed that 1,130 (42%) of the fraud examiners surveyed experienced fraud incidents because of the lack of internal controls (ACFE, 2018). Business owners and general managers face the challenge of developing procedures to encourage operational efficiency thus to prevent occupational fraud (Frazer, 2016). It is

imperative that small business owners, administrators, and consultants understand how and why occupational fraud can take place (Kramer, 2015).

Problem Statement

Although occupational fraud is a crisis for all organizations, small business' vulnerability to financial losses brought about by employee theft is higher than for larger organizations (Kennedy & Benson, 2016). A representative of the ACFE (2016; as cited in Stone, 2016), stated that the annual average loss from fraud for small business owners in the United States was \$150,000 per incident, and that occupational fraud was the most common type of fraud for small business organizations. The general business problem is that weak internal controls in gas and convenience stores may cause an increase in occupational fraud. The specific business problem was that some small business owners and managers in Puerto Rico do not understand the relationship between the degree of segregation of duties, the attitude toward internal controls, and the internal control system in small gas and convenience stores.

Purpose Statement

The focus of this quantitative correlational study was to examine the relationship, if any, between the degree of segregation of duties, the attitude toward internal controls, and the internal control system of small gas and convenience stores. The two independent variables were the degree of segregation of duties and attitude toward internal controls. The dependent variable was an internal control system. The target population included business owners and managers of gas and convenience stores in Puerto Rico. The implications for positive social change included the potential of raising the awareness for small business owners and operational managers of the relationship between the internal control system and occupational fraud and its importance. This

knowledge could help small business owners and managers add to their business prevention and detection tools. Internal control procedures help improve operational processes, workload assignment, and prevent the embezzlement of assets (Frazer, 2016).

Nature of the Study

There are three main types of research methods: qualitative, quantitative, and mixed methods. I chose a quantitative research method for this study over the qualitative and mixed method. A quantitative method primarily refers to the use of the systematic phases of the scientific method, while using a numerical technique to study the relationships of specific variables (Edmonds & Kennedy, 2017). In contrast, a qualitative investigation consists of open-ended questions where participants can disclose their understandings (Babbie, 2017). Mixed method research combines the elements of quantitative and qualitative research (Heppner, Wampold, Owen, Wang, & Thompson, 2016). The purpose of this study was to examine the relationship, if any, between the degree of segregation of duties, the attitude toward internal controls, and the internal control system. The quantitative research method was appropriate for this type of investigation, rather than the qualitative methodology because I examined the relationship between a set of independent variables and a dependent variable.

The research design of this quantitative study was correlational. Researchers use a quantitative research design to investigate the relationships between variables by comparing groups or by relating variables directly (Leavy, 2017). There are four principal types of quantitative research design: descriptive, experimental, quasi-experimental, and correlational (Heppner et al., 2016). In a descriptive design, researchers reply questions of what, where, when, and how (Babbie, 2017). In an experimental design, researchers manipulate simultaneously two

or more independent variables and establish whether variables are causally related (Bordens & Abbott, 2018). In a quasi-experimental research design, researchers manipulate control groups to test cause and effect (Kim & Steiner, 2016). The control group is the foundation of an experimental research design where researchers create conditions and study their effects on participants (Tavakol, 2019). In correlational investigations, on the other hand, researchers reveal the degree of relationship between two or more variables (Tosun, 2019). The purpose of this study was to examine the relationship among three variables. Thus, the correlation method meets the needs of this study.

Research Question and Hypotheses

The following research question guided this study: What is the relationship, if any, between the degree of segregation of duties, the attitude toward internal controls, and the internal control system in small gas and convenience stores in Puerto Rico?

H₀: There is no statistically significant, predictive relationship between the degree of segregation of duties, the attitude toward internal controls, and the internal control system in small gas and convenience stores in Puerto Rico.

H₁: There is a statistically significant, predictive relationship between the degree of segregation of duties, the attitude toward internal controls, and the internal control system in small gas and convenience stores in Puerto Rico.

Theoretical Framework

The theoretical basis that frames this study is the fraud triangle theory of Cressey (1986), and the Committee of Sponsoring Organization of the Treadway Commission (COSO) internal control integrated framework. Fraud examiners use the fraud triangle theory to understand fraud

perpetrators' behavior and as a tool for the prevention, detection, or remediation of fraud actions (McMahon, Pence, Bressler, & Bressler, 2016). Cressey developed the fraud triangle based on 133 interviews with inmates of the Illinois State Penitentiary who had been convicted of embezzlement. Cressey (1986) identified the three key elements of the fraud triangle theory: (a) financial pressures, (b) rationalization, and (c) opportunities. According to Cressey, these elements explain the reasons that bring about employee fraudulent behaviors. The presence of all three elements produces favorable environments for executing the fraud.

Business administrators could develop an internal control system following the internal control-integrated framework established by the COSO. The updated version of the 1992 Internal Control-Integrated Framework released by COSO stated that the internal control system is a process performed by the business board of directors, administration, and other employees and it is intended to offer reasonable assurance about the accomplishment of objectives relating to operations, reporting, and compliance (COSO, 2013). The COSO noted that the internal control system involved five integrated elements: (a) control environment, (b) information and communication, (c) risk assessment, (d) control activities, and (e) monitoring activities (Stone, 2016).

Operational Definitions

Asset misappropriation: Asset misappropriation implies stealing an asset of the business for personal use of the company's cost or misuse of the assets of a company (ACFE, 2018).

Corruption: Corruption is any plan in which an individual uses his or her authority in a commercial contract to gain an unlawful benefit opposing to that individual's responsibility to his or her company (Albrecht, Albrecht, Albrecht, & Zimbleman, 2015).

Financial statement fraud: Financial statement fraud is a deliberate misstatement or omission of financial information in financial reporting (Tschakert, Needles, & Holtzblatt, 2016)

Fraud: Fraud is a deliberate act, deemed illegal or highly unethical, performed within the course of one's employment where fraud perpetrator tricks the organization out of its resources (Albrecht et al., 2015).

Fraud opportunity: Fraud opportunity is the opportunity that one can commit fraud while not being caught (Omar et al., 2016).

Internal control: Internal control is a process, influenced by an organization's board of directors, administration and other employees, planned to offer reasonable assurance about the accomplishment of objectives in (a) the effectiveness and efficiency of operations, (b) the reliability of financial reporting, and (c) the compliance of pertinent laws and regulations (COSO, 2013).

Insider fraud: Insider fraud occurs when a person within a business abuses his or her title for corrupt, self-dealing, asset misappropriation, and financial statement fraud (Simser, 2014).

Occupational fraud: Occupational fraud wherein an individual uses his or her occupation to benefit financially purposely by misappropriating company assets (ACFE, 2018).

Small business: A small business is an organization with less than 100 employees (ACFE, 2018).

Assumptions, Limitations, and Delimitations

Assumptions

An assumption is a statement taken to be true without proof (Nkwake & Morrow, 2016). There are several assumptions underlying this research study. The first assumption was that all

small business owners and managers perform under some specific internal control system to prevent and detect fraud. The second assumption was that occupational fraud has a negative impact on small business organizations' revenues. The final assumption was that the research study participants understood the survey questions and provided honest responses.

Limitations

Limitations are a possible weakness in an investigation that are out of researcher's control (Greener, 2018). Potential limitations of the research study include sample size, confounding variables, and the lack of previous research studies about the internal control system in small gas and convenience stores in Puerto Rico. The survey does not allow participants any chance to explain any of the questions asked about occupational fraud, the degree of segregation of duties, or internal control system because of the interval response scale for each question.

Delimitations

Delimitations are the boundaries of the investigation (Newman, Hitchcock, & Newman, 2015). The research study focused only on small gas and convenience stores in Puerto Rico. The results of this study may not be generalizable beyond the population of small retail businesses in Puerto Rico. The results might not be relevant to other types of small retail businesses.

Significance of the Study

This study may be of value to small business owners and managers who could gain an understanding about the relationship or lack of relationship between an internal control system, segregation of duties, and attitude toward internal control. Such information could help small business owners and managers develop an internal control system to detect and prevent

occupational fraud and thus generate business financial stability. Small business owners and managers could also gain knowledge of fraud prevention and detention techniques.

Contribution to Business Practice

Small business owners and managers may benefit from the results of this study by gaining an understanding of the relationship or the lack of relationship between an internal control system, segregation of duties, and attitude toward internal control. Donelson, Ege, and Mcinnis (2017) stated that there is statistically and economically significant association between material weaknesses and the future revelation of fraud, which is driven entirely by incidences where the internal control problem exposes a general opportunity to commit fraud rather than a process-specific control inadequacy. Small business owners and managers may benefit from this study by developing an internal control system to detect and prevent occupational fraud.

Implications for Social Change

Social change may occur from the investigation results, as these results contribute to identifying the value of a comprehensive internal control system that may discourage and prevent occupational fraud. Small business owners and managers' awareness of the relationship of an internal control system and occupational fraud might decrease a perceived opportunity to commit occupational fraud, thereby reducing business bankruptcy risk and creating employment stability. Someone must eventually assume the cost of occupational fraud, and it is frequently the final consumers (Kumar, Bhattacharya, & Hicks, 2018). Customers and society could benefit from companies that implement an effective internal control system to detect and prevent occupational fraud. Such action would decrease fraud activities, which could then yield a stable and reasonable price system.

A Review of the Professional and Academic Literature

The following section consists of a review of the professional and academic literature on fraud theory, fraud triangle theory, the fraud diamond, and the fraud scale. Additional topics covered in this review include small business fraud, occupational fraud, financial statement fraud, asset misappropriation, corruption, and organizational internal control systems. A literature review is a thorough summary of existing research to assemble an argument on a concerning subject (Wachter Morris & Wester, 2018) and thus identify a research topic that needs investigation.

To identify the relevant peer-reviewed literature, I searched the following databases: Google Scholar, Academic Search Complete, Business Source Complete, EBSCOhost, ProQuest Central, Science Direct, Emerald Insight, JStor, and VitalSource Bookshelf. The key terms in the databases included *white-collar crime*, *occupational fraud*, *occupational crime*, *employee fraud*, *occupational deviance*, *workplace crime*, and *small business fraud*, *segregation of duties*, *fraud examination*, *fraud triangle fraud prevention*, *internal control system*, and *fraud detection*. I performed a search, which yielded 106 references (85% published between 2015 and 2019), of which 72 (66%) are included in the literature review. The following Table 1 shows the breakdown of the sources.

Table 1

Sources Used in Literature Review

Sources of literature	Numerical count	Numerical count percentage of total
Peer-reviewed journals within the 5 years of 2019	56	78%
Nonpeer-reviewed journals within 5 years of 2019	0	0
Peer-reviewed journals within more than 5 years of 2019	6	8%
Nonpeer-reviewed journals within more than 5 years of 2019	1	1%
Dissertations/doctoral studies within 5 years of 2019	1	1%
Dissertations/doctoral studies within more than 5 years of 2019	0	1%
Books published within 5 years of 2019	3	4%
Books published within more than 5 years of 2019	0	0%
Other references	5	7%
Total	72	100

The Fraud Triangle

The principal theory concerning fraud in auditing and forensic accounting is the fraud triangle (Andonet al., 2015). In 1986, Cressey developed the fraud triangle theory, based on 133 interviews with inmates of the Illinois State Penitentiary convicted for embezzlement. The fraud triangle theory emphasizes the perpetrator's nature to transgress (Mui & Mailley, 2015). The fraud triangle represents this approach (see Figure 1). This theory recognized three psychological fraud development stages (a) the feeling to withhold personal financial problem, (b) the understanding to resolve financial problems by betraying a status of financial confidence, and (c) the capacity to find a method that defines the act of stealing in arguments that do not diverge from the appearance of oneself as a reliable individual.

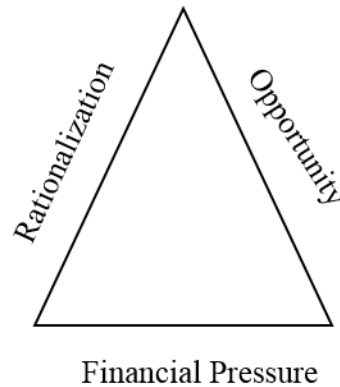


Figure 1. The fraud triangle.

Cressey (1986) specified that the fraud triangle identifies the following three elements: (a) financial pressures, (b) rationalization, and (c) opportunities. To proactively adapt the fraud risk elements, administrators should clearly comprehend the essential factors which influence occupational fraud (Abdullahi & Mansor, 2015). Given that all three elements must be present for an act of fraud to take place, each of them should be addressed independently (PwC, 2018). The presence of all three components produces a favorable environment for executing occupational fraud (Andon et al., 2015). Small business owners and managers should prevent an environment which leads to occupational fraud.

Pressure, as defined by Cressey (1986), is a need or non shareable setback that precedes the criminal breach of financial trust. Generally, pressures relate to financial necessities, while nonfinancial pressures such as the demands to show financial profits, dissatisfaction with work, or even the possibility of exhausting the system, and can also provoke fraud (Albrecht et al., 2015). The most significant type of pressure that may influence an individual is financial pressure (Bragg, 2016). Said, Asry, Rafidi, Obaid, and Alam (2018) suggested that if financial pressures occur, an employee tends to perpetrate monetary or non-monetary fraud. Therefore, to

prevent occupational fraud, small business owners and managers must recognize and should not ignore employee behavior suggesting that employee living expenses are beyond their earnings.

Business owners and managers should consider red flags associated with pressure from a sharable and non sharable financial problem that might motivate employees to engage in unethical conduct. Financial pressure influences a person to act criminally (Mui & Mailley, 2015). An example of an organization's fraud risk factors relating to financial pressure is a) poor financial execution, (b) excessive pressure to meet the profit goal, (c) rapid asset growth, and (d) substantial performance-based compensation (Mui & Mailley, 2015; Roden, Cox, & Kim, 2016). Most fraud perpetrators have no criminal credentials (Hess & Cottrell, 2015). Instead, upright individuals find themselves rationalizing uneasy choices when they are confronting pressures in their personal lives, such as bankruptcy, a divorce, or the need of funding for family members struggling with addiction or health situations (Hess & Cottrell, 2015).

When assessing business fraud risks and planning fraud prevention controls, administrators must remember that fraud perpetrators usually evaluate whatever opportunity arises when perpetrating their schemes (ACFE, 2018). For example, lacking segregation of duty, such as the responsibility to purchase, receive, and pay for merchandise, done by the same individual create an opportunity to perpetrate fraud (Omar et al., 2016). An opportunity results when employees challenge weak internal controls in deficient business settings (Mui & Mailley, 2015). The perceived opportunity involves the skill to execute the action and to do so without discovery (Dorminey, Fleming, Kranacher, & Riley, 2012).

When there are insignificant possibilities of being discovered, fraud opportunity turns out to be more desirable to the fraudster (Mui & Mailley, 2015). In terms of opportunity,

occupational fraud is possible in businesses with weak internal control systems, inadequate security over business resources, or vague procedures regarding adequate behavior (Huang, Lin, Chiu, & Yen, 2016). Business owners' and managers' understanding of the relationship between weak internal control systems and occupational fraud is essential to prevent and detect fraud. Small business owners and managers should bring together a group of reliable consultants to help them brainstorm other ways that their business may be vulnerable and to help them discuss ways to mitigate occupational fraud opportunities (Kennedy & Benson, 2016).

Business owners and managers make plans to decrease operating expenses in challenging economic periods neglecting the implementation of an internal control system. Officials of Hiscox, the international specialist insurance company, revealed in the Hiscox Embezzlement Study (2017) that 220 (55%) of the employee embezzlement cases in U.S. federal courts in 2016 occurred at businesses with less than 100 employees. Employee theft can serve as a red flag revealing weaknesses in protection, administration, and internal controls within the victimized small business (Kennedy, 2017). These operational weaknesses are what the owners of victimized small business draw from, to address the opportunities that facilitate occupational fraud (Kennedy, 2017). Opportunity surfaces from weak internal control in a business which empowers the employees to execute fraud, because the likelihood of being discovered is low (Mustafa, Mohamed, & Said, 2017). Small business occupation fraud is often carried out by a trusted employee because it is effortless for them to find the opportunity to commit fraud and to hide their tracks (Hess & Cottrell, 2015). The perceived risk of weak internal controls and the temptations to take advantage of these circumstances motivate the employee to breaches owners and managers trust (Abdullahi & Mansor, 2015). The degree of trust a business owner allows an

employee offers an opportunity to commit occupational fraud (Lenz & Graycar, 2016). Suh, Nicolaidis, and Trafford (2019) concluded that eliminating the employee perceived opportunity to commit fraud is significantly associated with the declined probability of fraud incidence in companies.

Business owners and managers must pay attention to how employees rationalize what they deserve to anticipate fraudulent behavior. The most challenging fraud triangle element to assess is the rationalization (Lawal, Amogu, Adeoti, & Ijaiya, 2017). Unusual and extraneous incidents justify a rationalization perception for inexcusable actions in a social context (Lawal et al., 2017). Mui and Mailley (2015) observed that the fraud perpetrator rationalizes the behavior as acceptable because the perpetrator's situation is a critical exclusion. Repeatedly, administrators' fraud prevention efforts to identify employee financial and nonfinancial pressures and to eliminate fraud opportunities within an organization overlook the rationalization element as a key issue in preventing fraud (Reinstein & Taylor, 2017). Business owners' and managers' awareness about employee fraud rationalization behavior is essential to prioritize fraud prevention controls to decrease occupational fraud. This understanding helps business owners and managers to establish an effective internal control system that could minimize the rationalization of committing fraud.

Employee rationalization displays the work ethics attitude that allows a justifying reason for fraudulent actions (Mustafa et al., 2017). Employees rationalize stealing as a reward for overcoming limited working circumstances (Dorminey et al., 2012). Rationalization suggests that the fraud perpetrator must articulate some morally acceptable justification before participating in unethical actions and that the justification for the unethical actions is not a

criminal act (Ruankaew, 2016). Employees rationalize theft by convincing themselves that the organization owes them something (Dorminey et al., 2012). When an organization overlooks employee commitment to their work, employees rationalize they deserve whatever they can steal from the organization.

The fraud triangle theory has influenced the development of professional auditing and accounting standards such as the Statement on Auditing Standards (SAS) No. 99, the International Accounting Standards Board 2009, the Australian Auditing and Assurance Standards (ASA) 240 and the International Standard on Auditing 240 (Free, 2015). Business administrators use the fraud triangle theory to recognize when fraud is likely to take place. Huang et al. (2016) stated that SAS No. 99 reveals that three elements of the fraud triangle can detect when the occupational fraud happens (Huang et al., 2016). Because the fraud triangle theory has been so influential in the field, it is of utmost importance that business owners and managers become aware of its implication to prevent and detect occupational fraud.

Mustafa et al. (2017) proved that asset misappropriation arises if there is: (a) financial or nonfinancial pressure among the employees, (b) lack of an internal control system, (c) opportunity to commit fraud by the administration and supervisors, and (d) employee rationalization of fraud which empowers employees to validate their actions. The fraud triangle theory offers an efficient abstract model that aids the anti fraud community in accepting the elements that define fraud (Dorminey et al., 2012).

When the three fraud triangle elements are displayed within a business, occupational fraud risk is higher (Murphy & Free, 2016). To decrease occupational fraud, the opportunity to execute fraud should be diminished through effective internal control, lessening of negative

rationalization, and employee financial pressure (Jamaliah, Salsabila, Marhamah, Rida, & Mahmudul, 2018). It is essential for business owners and managers to understand what increases the risk of occupational fraud and what helps to prevent it (Suh et al., 2019). Ruankaew (2016) stated that because all business can be an object of occupational fraud, and this problem is on the rise, fraud theory is consequently a significant subject of study that may enhance companies comprehending of derivation origins of this behavior before it takes place too late. Business owners and managers need to understand the set of values that nourish business accounting fraud, and the unique behaviors and procedures to perpetrate these frauds (Lokanan, 2018).

COSO Internal Control Integrated Framework

Two globally known internal control frameworks issued by the COSO of the Treadway Commission: (a) the Internal Control – Integrated Framework, initially published in 1992, but updated in 2013, and (b) COSO Enterprise Risk Management (ERM), published in 2004 (Frazer, 2016; Länsiluoto, Jokipii, & Eklund, 2016). COSO released a new, ERM framework, titled *Enterprise Risk Management—Integrating with Strategy and Performance*, in June 2017 (Prewett & Terry, 2018). COSO 2017 ERM framework focuses on the development of enterprise risk management and the need for businesses to enhance their procedure for managing risk to meet the needs of a changing business environment (COSO, 2017). The 2017 ERM framework highlights the integration of ERM with strategy-setting and driving performance (Prewett & Terry, 2018). Business owners and managers use the COSO (1992) internal control integrated framework to develop internal control activities to assist business performance (Frazer, 2016). Organizations improve the efficiency of internal control systems to decrease the risk of fraudulent financial reports by applying COSO 2017 ERM framework (Rahman & Al-Dhaimesh,

2018). COSO internal control integrated frameworks provide a sound theoretical framework for this study.

As defined by the Treadway Commission, an internal control system as a process performed by the business board of directors, administration, and other employees intended to offer reasonable assurance concerning the accomplishment of objectives relating to operations, reporting, and compliance (COSO, 2013). Officials of the COSO acknowledges that the internal control system involves five integrated elements: (a) encouraging a constructive control environment, (b) showing risk assessment, (c) developing and employing norms and procedures for control activities, (d) delivering useful information and communication, and (e) addressing continuing monitoring activities of the internal control system (Stone, 2016). When small businesses endure and prosper, the United States economy is sturdier as the business increases and jobs are generated (Bressler & Bressler, 2017). Small business owners and managers can raise their possibility of achievement by developing comprehensive organization processes and an internal control system (Bressler & Bressler, 2017).

The COSO framework applies to all types of organizations and government organizations (COSO, 2013). These components may be considered as essential principles and support for planning, evaluating, and renewing internal controls (Länsiluoto et al., 2016). Businesses that employ the COSO's internal control framework should improve the understanding of the direct, indirect, and reciprocal relations between the components of internal control systems (Rae, Sands, & Subramaniam, 2017). Small businesses should consider the establishment of an internal control system using the COSO framework.

The control environment is crucial to other components because it establishes the tone and culture of a company on which all the other four components are grounded (Lämsiluoto et al., 2016). The control environment is a set of principles and methods which are the foundation for carrying out internal control throughout the business (COSO, 2013). Business owners and managers use the control environment standards as a tool to disseminate the administration's pledge to ethical and honest performance, employment of efficient internal controls and proper financial reporting (Frazer, 2016). The tone at the top, projected by small business owners and managers influences the social business environment, specifically the backdrop for day-to-day activities and transactions.

Administrators need to develop procedures to recognize, assess and deal with the risks associated with the ongoing changes in economic, industry, regulatory, and operational conditions (Frazer, 2016). Risk assessment incorporates the process for detecting and assessing the risk to the realization of business objectives (COSO, 2013). The fraud risk assessment starts with a brainstorming meeting to expose the business' probable fraud risks, without reflecting modification of the controls (Rose, Sarjoo, & Bennett, 2015). The assessment should be designed with the business operating environment, together with industry practices, company culture, the economic position, relevant regulatory organizations, company practices, and company settings (Rose et al., 2015). Administrators should perform a fraud risk assessment to detect and comprehend the risks to their organization and weaknesses in the internal control system.

Control activities are the procedures that facilitate a manager's responsibility to lessen the risk that business objectives are not in place (COSO, 2013). The control activities related to the rules and actions that help ensure administrative instructions are implemented (Lämsiluoto et al.,

2016). Activities such as consents, endorsements, authentications, reconciliations, evaluations of operating performance, the safeguarding of resources, and the segregation of duties are examples of control activities (Frazer, 2016). Administrators could develop alternative control activities when the segregation of duties is not practical for their business operations (COSO, 2013).

Administrators should continually evaluate and monitor their business operations.

Monitoring is a procedure to evaluate the current operating structure for an ongoing improvement generated by managers or internal auditors (Nurhayati, 2016). The monitoring of activities will ensure that each of the components of the internal control is displayed and running efficiently (COSO, 2013). Administrators should use the informative components to carry out the internal control duties and ensure the attainment of the business objective (COSO, 2013). This component is the allocation of necessary information and the requirement of reports to show execution (COSO, 2013). All procedures and actions of the organization must always be notified in a comprehensible manner to all interested parties (Nurhayati, 2016). Continuing monitoring should take place during business operations and should include regular supervision and administrative activities, as well as other measures that employees assume while performing their responsibilities (Frazer, 2016).

Donelson et al. (2017) concluded that weak internal controls relate to a higher risk of hidden accounting fraud. Small businesses that implement the COSO internal controls framework could increase operating profits and prevent fraud (Mutnuru, 2016). Rae et al. (2017) stated that there is a direct relationship between a control environment and information and communication. Information and communication have a relationship with risk assessment, whereas risk assessment relates to the development of control activity policy and procedures

(Rae et al., 2017). Consequently, administrators should monitor the control activity policies and procedures to assure implementation, compliance, and applicability of control activity policies and procedures (Rae et al., 2017).

Revival and Alternative Fraud Theories

Fraud jeopardizes job security for many individuals, as companies may go into bankruptcy because of the fraudulent schemes. Moore (2018) concluded that occupational fraud is a continuing problem for all organizations, particularly for small businesses with fewer than 100 employees. The ACFE (2018) stated that fraud affects small businesses because they lack fraud prevention controls, which makes them vulnerable to fraud risk. Fraud is a way to deceive others for personal gain. Fraud is an intentionally deceptive action of an individual to obtain a benefit over another by a false representation of a material fact (Albrecht et al., 2015). Fraud is an unlawful or extremely dishonest deliberate action within the course of a person's occupation (Murphy & Free, 2016).

To prosecute an occupational fraud event, litigation arguments must show that fraudulent actions involved elements such as (a) a false statement of a material fact, (b) knowledge that the statement was false, (c) intention to delude the victim, (d) belief by the victim on the veracity of the statement, and (e) damage endured by the victim as a result of the foregoing actions (Bragg, 2016). Fraudulent financial statements are an epidemic for customers and organizations its detection and prevention are of significant interest to regulators and corporate administrators (Apostolou & Apostolou, 2012). Losses from fraudulent financial statements influence the administration, employees, stockholders of an economic entity, and on external users, such as investors, banking organizations, creditors, and others (Kulikova & Satdarova, 2016). Congress

approved the Sarbanes-Oxley Act (SOX, 2002) as a response to the financial collapse of WorldCom, Xerox, Merc, Enron, and Adelphia Communications in 2001 (Gray & Ehoff, 2015). In 2002, the federal government created the interagency Corporate Fraud Task Force to imprison criminals and to reestablish an environment of accountability and truthfulness within companies across the country. In 2009, President Obama created the Financial Fraud Enforcement Task Force to fight financial statement fraud associated with mortgage lending, securities regulation, incentive outlay, and the federal bailout of the financial sector (Apostolou & Apostolou, 2012).

SOX created the Public Accounting Oversight Board (PCAOB) to supervise the audits of public corporations, to look after the securities of investors, and to oversee the audits of stockbrokers, requiring the recording of compliance statements. SOX established that false financial statements were criminal acts that convey penalties for financial statements fraud perpetrators (Apostolou & Apostolou, 2012). Regardless of the antifraud act, task force teams, regulations established by the public and private sectors, and the frequency and amount of financial statement fraud is increasing (Apostolou & Apostolou, 2012).

Misleading financial statements embody another fraudulent situation where corporate organization's financial reporting and disclosures do not follow or violate securities law regulations. In 2013, the SEC formed the Financial Reporting and Audit Task Force (FRAud) to expand the agency's capability to detect fraud and prevent restatements of corporate financial statements (Jennings, 2015). FRAud employees were looking to enhance programs and data that could identify where corporations had ethical problems in financial reporting and get involved before those ethical problems matured into financial fraud and losses (Jennings, 2015). An administrator does not suddenly choose to report millions on ordinary expenses, which was the

accounting fraud that damaged and caused WorldCom to fall (Jennings, 2015). Bressler and Bressler (2017) stated that occupational fraud prevention is the most successful method for diminishing fraud activities. Prevention is considerably less expensive than the costs arising from occupational fraud activities (Bressler & Bressler, 2017).

An understanding of the fraud theory can help business owners and managers develop and implement internal control to prevent and detect occupational fraud (Kramer, 2015). Some scholars believed that to increase fraud prevention and fraud detection; the fraud triangle should incorporate additional elements (Albrecht et al., 2015; Dorminey et al., 2012; Wolfe & Hermanson, 2004). An assessment of several fraudulent acts establishes that the fraud triangle may not entirely detect fraud (Dorminey et al., 2012). For example, commercial bribery involves more than one individual and, while probable, it is uncertain that a non-sharable financial need as described by the fraud triangle will motivate every party to participate in a bribery scheme (Dorminey et al., 2012). Researchers have evolved the fraud triangle theory by incorporating additional elements to strengthen fraud prevention and fraud detection. In addition to the theories mentioned above, I considered but finally did not use the following two theories to support the study (a) fraud diamond theory, and (b) fraud scale theory.

The fraud diamonds. Boyle, Dezoort, and Hermanson (2015) stated that regardless of the fraud triangle's leading position in the literature, interrogations exist about whether the initial theory can be enhanced for use by auditors and others occupied in fraud risk management. In 2004, Wolfe and Hermanson (2004) introduced the fraud diamond theory. Multibillion-dollar fraud cases would not have happened without the appropriate individual with the abilities to commit occupational fraud (Wolfe & Hermanson, 2004). Administrators should consider a

fourth component for the fraud triangle to increase business fraud prevention and detection (Wolfe & Hermanson, 2004). The four-sided fraud diamond demonstrates a person's capability besides the motivation, opportunity, and rationalization attitude (Wolfe & Hermanson, 2004). The likely fraud perpetrator must have the abilities and capacity to perpetrate fraud (Ruankaew, 2016). The fraud diamond represents this approach with four components (see Figure 2).

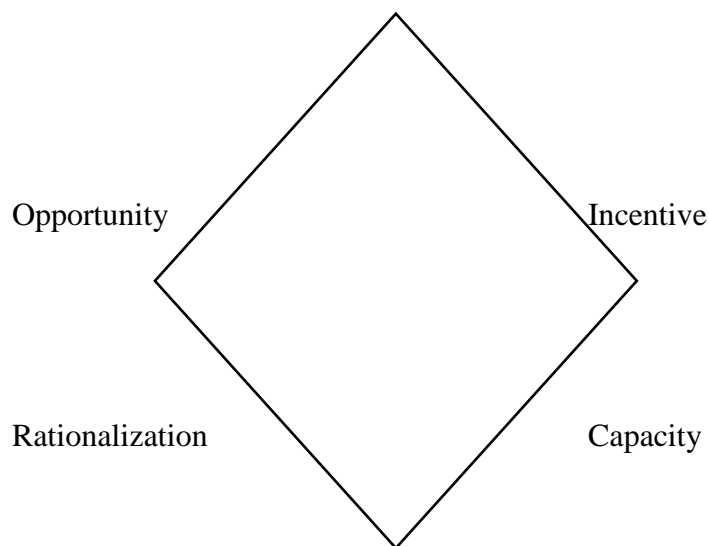


Figure 2. The fraud diamond.

Boyle et al. (2015) concluded that evidence exist in support of a reviewed three-element fraud theory that consist of pressure, opportunity, and a new capability element that includes rationalization/attitude and the additional capability element. Opportunity unlocks access to fraud, and rationalization can pull a person in that direction (Wolfe & Hermanson, 2004). However, an individual must have the capability to distinguish the open entrance as an opportunity and to take advantage of by moving through, not just once, but time and time again (Wolfe & Hermanson, 2004).

The fraud triangle theory and the fraud diamond theory come across on three of the fraud elements as pressure to execute fraud, opportunity to manipulate the administrative weaknesses, and the rationalization to excuse fraudulent behavior (Abdullahi & Mansor, 2015). However, the fraud diamond has a few shortcomings. It does not reveal the following elements (a) the conditions under which it is uncomplicated to execute fraud, (b) the person's ability to commit fraud, (c) when there is the highest risk of fraud, and (d) does not consider the character of the internal control system in evaluating and detecting fraud (Mackevicius & Giriunas, 2013). Generating a fraud scale is necessary to overcome this deficiency (Mackevicius & Giriunas, 2013).

Fraud scales. In 1980, Albrecht, Howe, and Romney developed the fraud scale. Albrecht et al. analyzed 212 fraud cases by administering a questionnaire to internal auditors of companies that had experienced fraud. The fraud scale is comparable to the fraud triangle, although the grade scale incorporates an element known as personal integrity instead of rationalization (Vousinas, 2019). Figure 3 presents the components of the fraud scales: situational pressure, opportunities, and personal integrity (Albrecht et al., 2015).

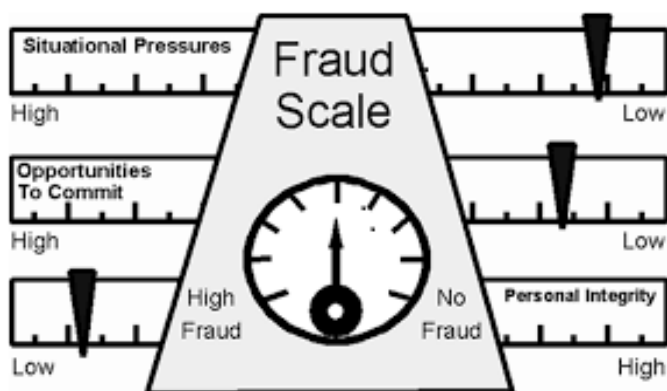


Figure 3. The fraud scale. Source: From “*Fraud examination (5th ed., p.36)* by C. C.

Albrecht, C. O. Albrecht, W. S. Albrecht, and M. F. Zimbleman, (2015), Boston, MA: Cengage Learning. Copyright 2015 by Conan C. Albrecht, Chad O. Albrecht, W. Steve Albrecht, and Mark F. Zimbleman.

Independent Variable: Segregation of Duties

Fraud is the dark side of a company, one that many individuals desire not to think about (Kramer, 2015). Stockholders and financiers in public and private sector organizations are concerned with the protection of their resources, thus, investors entrust administrators with performing in their best interest (Ndege, Odhiambo, & Byaruhanga, 2015). This separation of rights involves a loss of control by owners and taxpayers over administrative decisions that relate to the effectiveness of their assets (Ndege et al., 2015). Responsible governance actions to improve operating controls to safeguard organizations’ resources are necessary to build investors' trust.

Small business administrators should be aware of the individual variables that influence employees’ fraudulent behavior. Hess and Cottrell (2015) stated that collusion between merchants and employees may harm small business owners by creating shell companies and overbilling operating expenses. Hess and Cottrell also mentioned that employees steal from their

employers because they may rationalize that they deserve a share of the business profits or success. Often, family members run a small business, creating an issue of trust within relatives that prevent the implementation of internal controls. Hess and Cottrell indicated that weak cybersecurity internal controls can provide fraudulent employees with an opportunity to steal customer and company information. Hess and Cottrell concluded that even though fraud prevention measures could offer benefits to small business owners and the whole economy, some small business owners and managers are unfamiliar with fraud fighting procedures. Business organization administrators need to understand what fraud is, why individuals participate in fraudulent activities, the types of fraud, and the signals of fraud risk to detect and prevent fraud events (Bragg, 2016).

Businesses could improve operating income by developing an internal control system to detect occupational fraud. Occupational fraud continues to rise regardless of the numerous investigations by researchers, and of new and old laws to rule out fraud incidents (Gray & Ehoff, 2015). It is likely that the enacted antifraud legislation has improved the fraud detection process by giving the impression that fraud cases have increased and are increasing (Gray & Ehoff, 2015). It is critical to implement accountable governance and an internal control system to safeguard investors' resources (Ndege et al., 2015). Business leaders may demonstrate business or professional ingenuousness by setting excessive employee trust, which can lead to fraudulent activities.

Internal control such as the segregation of duties requires the distribution of responsibilities to complete one task among more than one employee. The size of the business can limit the segregation of duties in small business organizations because of employee size

constraints (Henry, 2016). The average fraud losses that small companies undergo are more significant than larger companies due to the lack of internal controls concerning the segregation of duties (Glodstein, 2015). The risk of fraud diminishes if several employees are engaged in different stages of a business transaction, as fraud would then necessitate the collusion of at least two individuals (Bragg, 2016). The size, age, and economic resources of the organization influence its capacity to set up appropriate internal control and the necessity for the internal control system is specific to each organization's unique operating environment (Frazer, 2016).

To diminish occupational fraud, business administrators must perform a fraud risk assessment to measure and improve their internal control system. A fraud risk assessment is an essential mechanism to prevent and detect potential risks and weaknesses in an internal control system that yield the opportunity to perpetrate fraud (Apostolou & Apostolou, 2012). The three essential elements of a fraud risk assessment are (a) detecting inherent fraud risk, (b) evaluating the possibility and implication of each inherent fraud risk, and (c) responding to possible and substantial inherent fraud (Crain, Hopwood, Pacini, & Young, 2016). To assess the possibility and implication of inherent risk, administrators should consider the history of the fraud incidents within the organization and the industry, the sophistication of the risk, the risk of an employee or departments, and the number of employee and transactions involved (Crain et al., 2016). Business owners and managers want to learn and understand how occupational fraud can harm business operations to prevent or detect fraudulent actions and avoid business operating losses (Kramer, 2015).

Independent Variable: Attitude Toward Internal Controls

The initial fraud loss of an occupational fraud incident stems from a series of additional costs just to execute the fraud investigation, such as security charges, insurance, loss of production, temporary and permanent employee replacement costs, health services, the cost of investigation, and external penalty cost (Button, Blackburn, Lewis, & Shepherd, 2015). Besides the loss of money associated with fraudulent actions, some fraud victims become emotionally affected, and their performance will be diminished (Hess & Cottrell, 2015). Administrators must identify loss exposures for all the business resources (equipment, company trade name, and documents) and potential liabilities that might result from fraudulent behaviors (Crain et al., 2016). The fraudulent loss exposure could be measured using a qualitative approach in terms of remote, reasonably potential, or possible and the magnitude of the possible loss can be expressed as small, medium, and large (Crain et al., 2016). In some occupational fraud incidents, the quantitative approach is useful to estimate dollar losses and appraisals of possibility distributions for losses (Crain et al., 2016).

Asset misappropriation is a problem for business owners and managers that require more than raising the protection of business resources and minimizing the closeness of potential fraudulent employee (Kennedy & Benson, 2016). Asset misappropriation refers to an employee embezzling organization asset for personal use at the employer's expense (Mui & Mailley, 2015). The ACFE (2016) stated that asset misappropriation is the most common type of occupational fraud, occurring in more than 83% of all cases reported in their study. Asset misappropriation encompasses two subcategories: misappropriation of cash and misappropriation of inventory and other assets (ACFE, 2018). The misappropriation of inventory and other assets

includes misuse of asset and larceny (ACFE, 2018). The misappropriation of money includes theft of money on hand, theft of cash receipts, and fraudulent disbursement (ACFE, 2018). The challenge for business owners and managers victimized by occupational fraud are the needing to trust employees as they did prior to the fraud incident, and at the same time develop and implement an internal control system (Kennedy & Benson, 2016).

The ACFE (2016) stated that among the different practices of asset misappropriation, billing schemes and check-tampering schemes represents the highest risk for the business organization. Billing schemes involve employees issuing payments, submitting fictitious invoices, operating expenses, overstated bills, or charges for employee's personal items (Albrecht et al., 2015). Check tampering occurs when an employee embezzles his or her company's money by modifying a company check or stealing a check that the business has issued to another recipient (Albrecht et al., 2015).

Corruption occurs when an employee influences a company's transaction to gain an unapproved advantage in opposition to that employee's responsibility to his or her company (Albrecht et al., 2015). Corruption is one of the examples of white-collar crimes that involve paying off public officers or company employees for an action (Albrecht et al., 2015). Business and government professional criminal deceiving behavior against their company create a negative economic impact, which could increase operating costs. White-collar convicts perpetuate occupational fraud, frequently with no physical force, granting an unlawful financial benefit for themselves (Schuchter & Levi, 2015). Statistically, white-collar convicts are previously highly regarded professionals who had no prior criminal involvement. Owners and managers must make plans to detect and prevent fraud with multiple internal controls such as

supervision, support group, employee observation group, and a multipurpose audit group to impact the organization in an affirmative track in relations of white-collar fraud, and corruption (Peters & Maniam, 2016).

Administrators may not detect all the frauds committed by an employee. Regardless of a company's effort to strengthen safety measures, occupational scheme and fraud continue to be a business threat (Giovino, 2015). Administrators cannot ignore the potential for fraud because businesses frequently do not have enough funds to undergo a fraud loss (Kramer, 2015). Occupational fraud prevention and detection are crucial to reducing operational loss (Giovino, 2015). Employees are less likely to commit occupational fraud when they become aware that they will probably be apprehended (McMahon et al., 2016). To deter the occurrence of occupational fraud, the organization must undertake fraud prevention measures (Ndege et al., 2015). The nature of each business and their level of social responsibility might influence the success of the organization's procedures to prevent and detect fraud (Ndege et al., 2015).

Recuperating from an occupational fraud event can be challenging and require the implementation of fraud prevention and detection procedures. Fraudulent actions can affect earnings, reputations, and overall assurance for administrators, employees, stakeholders, and communities (McMahon et al., 2016). Business owners and managers should establish fraud detection procedures to alert administrators about the occurrence of occupational fraud (Ndege et al., 2015). Insignificant approaches to overriding and overlooking the procedures and practices make the internal control systems inoperative (Nawawi & Salin, 2018). Inadequate supervision, the absence of job rotation, deficiency of segregation of duties and damaged communication, motivate fraudulent events (Nawawi & Salin, 2018). Occupational fraud can never be prevented

entirely; but the business can employ an internal control system to discourage and to detect fraudulent activities (Zakaria et al., 2016). Sow et al. (2018) concluded that to end the costly fraudulent activities occurring within the small and medium-size business, administration and/or owners should invest in the implementation of fraud prevention procedures such as the implementation of an internal control system. Ultimately, business owners and managers need to discuss and understand how to develop and establishes an internal control system to prevent and detect occupational fraud.

Dependent Variable: Internal Control

Developing an adequate internal control framework is perhaps the most significant step a business can achieve to prevent and detect occupational fraud (Albrecht et al., 2015). Small businesses are more vulnerable to occupational fraud than larger organizations. Fraud threatens the sustainability of small retail business in the United States (Mackevicius & Giriunas, 2013). The ACFE (2018) stated that small businesses in the United States sustained an average loss of \$104,000, whereas larger organizations showed an average loss of \$200,000. Considering that small business resources have fewer resources than larger organizations, the fraud losses for small companies have more severe consequences for small businesses compared to large ones (Stone, 2016). Small business owners and managers assist in the control of business corruption as they can help to guarantee that workers feel responsible for upholding prosocial occupation behaviors and discard damaging behaviors like occupational fraud (Kennedy, 2015).

Organizations establish an internal control system to safeguard their assets and to report accurate information to their stakeholders. Puspasari and Suwardi (2016) stated that because controlling the employee's moral thinking is impossible, the establishment of an internal control

system could be a tool to diminish employee tendency to commit financial statement fraud.

Administrators create objectives; establish manual and automated guidelines, procedures, and measures intended to achieve their business operating objectives; and outline and employ internal controls to guarantee that the guidelines, procedures, and measures are operating as planned (Dickins & Fay, 2017). An internal control system facilitates the assessment process of the organization's policies, procedures, and practice implemented by the managers (Mutnuru, 2016).

Petersen, Bruwer and Roux (2018) stated that occupational fraud occurs when employees abuse the trust designated to them by their business owners and managers for a personal reward. The ACFE (2018) estimated that the occupational fraud costs to organizations represent a 5 % loss of revenue yearly. The estimated costs related to global fraud were near \$4 trillion (ACFE, 2018). PwC (2018), estimated that 3,600 (50%) of their participants reported an above average expending effort to develop an internal control system to target opportunities to commit occupational fraud.

Zaki (2017) concluded that fraud is one of the primary motivations for the collapse of businesses and the triggering of financial fraud scandals. Financial statement fraud is an intentional attempt to deceive investors and creditors by misstating totals or disclosures (Tsegba & Upaa, 2015). Financial statement fraud can be defined as material misstatement in the financial statements, consequent of confusing financial statements arranged by administrators to reach their own interests (Zaki, 2017). Nevertheless, financial statement fraud detection is increasing because of the improvement of the organization's internal control systems (Gray & Ehoff, 2015). Internal controls must be designed for all business procedures, especially for those

procedures that, if not adequately measured, could bring about a material misstatement of a company's financial statements (Dickins & Fay, 2017). Visser, Chodokufa, Amadi-Echendu, and Phillips (2016) concluded that most business owners and managers exhibit the capabilities, skills, and the knowledge required to perform operating activities, but they lack those skills necessary to foresee and administer all aspects of the business and work daily the decision-making process. Business owners and managers need to acquire their understanding of the administrative aspect of the business, including the business internal control system to prevent and detect fraud activities.

Methodologies

The review of prior research studies related to organizations' internal control systems showed researchers' using the quantitative research method. Frazer (2011) used the quantitative methodology to examine restaurant administrators' perceptions of the internal control systems of restaurants. Hankerson (2016) used quantitative statistical analysis to examine the relationship between church size, church funds, denominational church membership, understanding of the church organization administrator and the level of internal accounting controls existing in certain churches throughout the United States. Lee (2016) used the quantitative method to examine the accounting, internal control best procedures in small community not-for-profit organizations. Researchers use the quantitative research design to examine the relationships between variables either by associating groups or by relating variables directly (Heppner et al., 2016). The use of the quantitative method is appropriate for this research study because the study will include examination of the relationship between variables.

Frazer (2011) used the quantitative research method and the correlation design to examine the relationship of internal controls in restaurants and the protection of assets, the segregation of duties, and the verification of transactions. Lee (2016) used the quantitative research method and the correlation design to determine the level of internal control score, the accounting background of financial officers, administrators attitude toward the use of internal controls, and the application of segregation of duties within the small not-for-profit organization. The goal for this study was to examine the relationship between independent variables and a dependent variable. The use of the correlation design is appropriate for this research study.

Summary and Transition

Section 1 established the foundation of the nature of fraud incidences in small businesses. Fraud incidences can result costly to society, regardless of the increasing awareness between regulators, researcher, and experts. Fraud is a negative aspect of an organization; therefore, many business owners and managers choose to ignore fraud occurrence incidences. Fraud continues to be a problem for small businesses because they typically have limited resources to prevent, detect, and recuperate from fraud incidents.

The purpose of this study was to examine the relationship, if any, between the degree of segregation of duties, the attitude toward internal controls, and the internal control system. The two independent variables were the degree of segregation of duties and attitude toward internal controls. The dependent variable was an internal control system. Thus, the quantitative research method and the correlation design meet the needs of this study. The target population included business owners and managers of gas and convenience stores in Puerto Rico. The implications for positive social change included the potential of raising awareness for small business owners

and operational managers of the relationship between the internal control system and occupational fraud and its importance.

The theoretical basis that frames this study is the fraud triangle theory of Cressey (1986), and the Committee of Sponsoring Organization of the Treadway Commission (COSO) internal control integrated framework. The significance of the study highlighted the importance of small business owners and managers who could gain an understanding about the relationship or lack of relationship between an internal control system, segregation of duties, and attitude toward internal control. Thus, business owners and managers can develop an internal control system to detect and prevent occupational fraud and to generate business financial stability to attain positive social change.

The literature review consisted of the author analysis and perspective of the fraud triangle theory, COSO framework, segregations of duties, attitude towards internal control and the internal control system. The fraud triangle identifies the following three elements: (a) financial pressures, (b) rationalization, and (c) opportunities. The COSO framework acknowledged that the internal control system involved five integrated elements: (a) control environment, (b) information and communication, (c) risk assessment, (d) control activities, and (e) monitoring activities. These elements may be considered as essential principles and support for planning, evaluating, and renewing internal controls.

The following section includes a description of my role as a researcher, and the research method and design chosen for the study. Section 2 also includes the strategy to select participants, collect, validate, organize, and analyze data. Section 3 contains a detailed analysis of the results and implications of the findings.

Section 2: The Project

Introduction

The purpose of this study was to examine the relationship, if any, between the degree of segregation of duties, the attitude toward internal controls, and the internal control system of small gas and convenience stores. The target population for this doctoral study consisted of owners and managers of gas and convenience stores located in Puerto Rico. Participants included managers of gas and convenience stores who completed a self-administered survey. This section includes additional information about the role of the researcher, participants, research method and design, population and sampling, ethical research, data collection and analysis techniques, and reliability and validity.

Purpose Statement

The purpose of this quantitative, correlational study was to examine the relationship, if any, between the degree of segregation of duties, the attitude toward internal controls, and the internal control system of small gas and convenience stores. The two independent variables were the degree of segregation of duties and attitude toward internal controls. The dependent variable was an internal control system. The target population included business owners and managers of gas and convenience stores in Puerto Rico. The implications for positive social change included the potential of raising the awareness for small business owners and operational managers of the relationship between the internal control system and occupational fraud and its importance. This knowledge could help small business owners and managers add to their business prevention and detection tools. Internal control procedures help improve operational processes, workload assignment, and prevent the embezzlement of assets (Frazer, 2016).

The Role of the Researcher

The role of the researcher is to establish the path of the study, aligning the research problem to the framework of the research design in order to collect the data and thus provide answers to the study's research questions (Edmond & Kennedy, 2017). My role as the researcher included selecting the appropriate research method and designing, recruiting potential participants, deciding on the instrument, collecting the data, analyzing the data, and describing the results. The study involved testing a hypothesis, based on data gathered from a survey given to owners and managers of gas and convenience stores in Puerto Rico.

My professional background includes forensic accounting and financial and operational audit services for small business organizations and not-for-profit organizations. In addition, I lecture at universities and conduct small business owner seminars on topics such as fraud, forensic accounting, auditing procedures, and the internal control systems for small business operations. My role as a researcher was to maintain the highest ethical standards to ensure that personal biases and opinions did not affect the results of the research.

In 1979, the National Commission for the Protection of Human Subjects and Biomedical and Behavioral Research () published the *Belmont Report* to identify basic ethical principles that should motivate any human subject research and developed the ruling to assure that such principles are followed. The *Belmont Report* emphasized three basic ethical principles when research involves human subjects: (a) respect for persons, (b) beneficence, and (c) justice. The participants were randomly selected from a list of gas and convenience store in Puerto Rico from an internet search. Participants received all the information about the research and voluntarily signed a consent form for their participation. I approached each participant with a letter of

invitation and a consent form to participate in an in-person survey. Although engaged directly in this phase, my interventions adhered to the highest ethical standards as to avoid contaminating the study and avoiding bias.

Participants

The participants consisted of business owners and managers of small gas and convenience stores located in Puerto Rico. For the purpose of this study, small businesses are companies that have fewer than 100 employees (ACFE, 2018). A pilot study is a small-scale study conducted prior to the research project used to test the validity of experimental measures and methods (Bordens & Abbott, 2018). After IRB approval [insert the Approval No. here], a group of 10 owners and managers of small gas and convenience stores located in Puerto Rico participated in a pilot survey to validate the instrument.

The data collection technique was a self-administered survey instrument conducted in person. The participants were contacted by phone or by e-mail to invite them to take part in this study and to schedule a business location visit (see Appendix A). Researchers should develop a respectful relationship with their participants by being truthful and precise about the purpose and methods of the investigation (Murphy, Peters, Wilkes, & Jackson, 2016). The research-participant relationship established can simplify or delay the participant selection and data collection process (Heppner et al., 2016). To establish a working relationship with participants, I explained the purpose of the investigation, the procedures, and the confidentiality of the participants. Finally, the participants understood the purpose of the investigation before they decided to complete the survey.

Research Method and Design

Research Method

The selection of the research methodology involves taking into consideration the topic of the study, research objective, and researcher's knowledge about the topic (Heppner et al., 2016). The three different sources of methods for responding research questions are the qualitative methods, quantitative methods, and mixed methods (Taguchi, 2018). In quantitative investigations, researchers examine the relationship between variables and investigate it through questions or hypotheses (Edmond & Kennedy, 2017). The purpose of this study was to investigate the relationship, if any, between the degree of segregation of duties, attitude toward internal controls, and the internal control system. The quantitative research method was appropriate for this type of investigation, instead of the mixed-method or qualitative methodology.

Previous investigations of internal control systems and occupational fraud support the use of the quantitative method for this research study. Frazer (2011) used the quantitative method to study internal controls in small business restaurants operating in Nassau County in New York State. Moore (2018) used the quantitative method to study 40 occupational fraud cases from clients of Certified Fraud Examiners in several states throughout the United States. Lee (2016) used the quantitative method to examine the degree to which specific critical influences, present within small not-for-profit businesses, influence the use of Accounting and Internal Control best practices and increases the probability of malfeasance and fraudulent activity. Therefore, for this study, the quantitative research method was appropriate, and the use consistent with previous

research investigation of the internal control system. For this study the quantitative method was appropriate and the use consistent with prior research investigation of internal control system.

Research uses numerical techniques to answer quantitative investigation questions, and a qualitative approach to answer nonnumerical questions (Babbie, 2017). The objective of the qualitative research is the case study (Edmonds & Kennedy, 2017). The qualitative investigation consists of open-ended questions where participants can disclose their understandings of the phenomena under investigation researchers typically (Leavy, 2017). The mixed method includes the quantitative approach of closed-ended questions and numerical design and the qualitative approach of open-ended question design (Edmond & Kennedy, 2017). The mixed-method or the qualitative research method was not appropriate for this study.

Research Design

The objective of this research was to test the relationship between two independent variables and a dependent variable. Researchers use a correlational design to study the relationship between variables (Leavy, 2017). Correlational research describes the linear relationship between two or more variables without any indication of assigning the effect of one variable on another (Salkind, 2018). Therefore, the correlational investigation techniques were the most appropriate technique for this research.

Surveys are information collection methods used to describe, compare, or explain individual and societal knowledge, feelings, values, preferences, and behavior (Bordens & Abbott, 2018). A survey can be a self-administered inquiry form that someone fills out alone or with assistance, or a survey can be an interview conducted in person or on the telephone (Babbie, 2017). Some surveys are on paper, by phone or online, and the respondent can complete them

privately at home or in a central location. For this study a paper survey was administered to the target population.

Population and Sampling

The population for this study included owners and managers of gas and convenience stores located in Puerto Rico. Implementing the organization's internal control system is the responsibility of small business owners and managers. A population is a total group of who would be the matter of the investigation, and about whom the scholar is seeking to assert something (Bordens & Abbott, 2018). Even though researchers desire to make assertions about the entire population, researchers also examine data collected from the sample for reasons of size, time, cost, or distance (Babbie, 2017). Researchers determine the sample size to investigate and the type of sampling method to use in their research. For this study, the sample size was between 68 and 146 participants. There are approximately 1,200 gas and convenience stores in Puerto Rico.

The two main types of samples are the random and the non-random sampling. In random sampling, all elements in the research population have an equal possibility of being chosen (Leavy, 2017). Using random sampling, each participant of the population has the same independent opportunity to be part of the sample (Salkind, 2018).

In nonrandom sampling, researchers draw participants in any potential approach possible to reach a suitable sample size (Babbie, 2017). In contrast to random sampling, some form of the nonrandom sampling frame is inaccessible by the investigator; researchers use nonrandom sampling to give up the precision of estimates to decrease recruitment costs (Bordens & Abbott, 2018). I used the random sampling method for this research for two reasons. First, researchers

use the simple random sampling to avoid bias in the selection of one individual instead of another, and second because the selection of one individual does not bias the investigator for or against the selection of another (Salkind, 2018). When sampling randomly, the uniqueness of the sample should be very similar to that of the target population (Salkind, 2018).

Various related factors guide the decision about sample size: heterogeneity of the target population, desired precision, type of sampling design, available resources, and many breakdowns considered in data analysis (Singleton & Straits, 2018). G*Power is a statistical software package quantitative researchers use to conduct a power analysis to determine the sample size (A. & Wester, 2018). The appropriate sample size for the study was determined using a G*Power version 3.1.9 software power analysis. An a priori power analysis, assuming a medium effect size ($f^2=.15$), $\alpha = .05$, and two predictor variables, identified that a minimum sample size of 68 participants is required to achieve a power of .80. Increasing the sample size to 146 will increase power to .99. The study included 129 participants (see Figure 4).

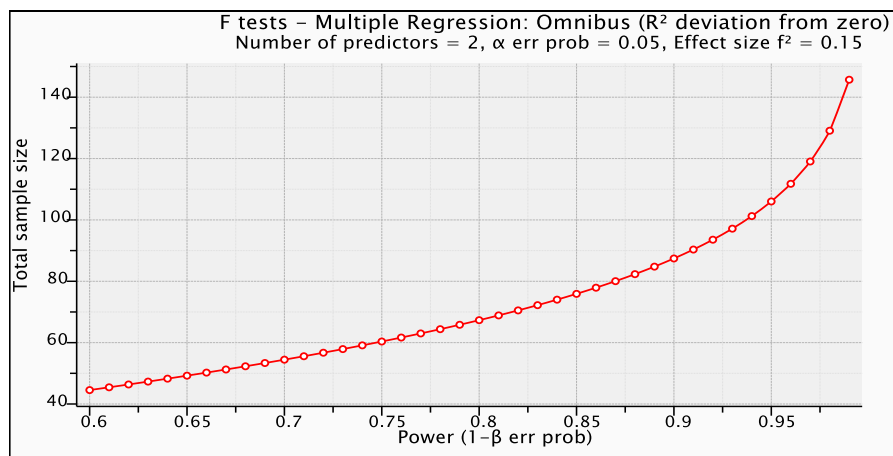


Figure 4. Power as a function of sample size.

Ethical Research

Researchers must select the appropriate research methods and design, and they should be aware and should apply ethical principles carefully (Heppner et al., 2016). Researchers should recognize that ethical inquiries arise at all stages of research design, from the selection of investigation topic, which raises questions about the importance of the investigation, through to the publication stage and beyond it, to additional uses and conclusions (Heppner et al., 2016). The academic researchers must demonstrate an ethical responsibility towards the study population about the security of the information provided. I complied with Walden University Institutional Review Board (IRB) requirements [insert Approval No. here]. I completed a training course on Protecting Human Research Participants offered by the National Institute of Health ().

I contacted the small business owners and managers involved in this study to give them the letter of invitation for the pilot study and the follow-up survey (see Appendix A). In the invitation letter, I introduced myself as a Walden University student pursuing a Doctor in Business Administration degree with a major in Accounting. Participants who accepted the invitation acknowledged a consent form before participating in the research. The consent form included (a) background information, (b) procedures for completing the survey, (c) the voluntary nature of the study, (d) risks and benefits of the survey, (e) incentive, (f) researcher's contact information, (g) ability to withdraw from the study, and (h) privacy.

Participation was voluntary, and there was no incentive for participation offered to participants. If a participant decided to withdraw from the study at any time, he/she had to notify me. The participant's name, company name, or any other identifying information that could

indicate the participant's identity in the study reports was not included. I was the only person who had access to the response data, secured and stored on a password-protected file and USB drive for at least 5 years, as required by Walden University.

Data Collection Instrument

The two most common quantitative research instruments are surveys and tests. I selected a survey as the instrument for this investigation: the Kistler's (2008) internal control survey (ICS). Kistler used the ICS to investigate the problems concerning internal controls within a Protestant Worship Centre (Kistler, 2008). The ICS is a not-for-profit organizations' internal control mail survey written on a five-point, Likert scale with scores ranging from 1 (very unlikely) to 5 (very likely).

Kistler (2008) authorized, by e-mail correspondence, to use and modify the ICS to fit the requirement of this investigation (see Appendix B). First, I only modified the wordiness of the demographic questions to obtain the necessary information from this study target population. For example, the business financial affairs substitute the term worship center financial affairs and the term church for business. Second, the ICS English version was translated into a Spanish version. A pilot study is a concise research to establish the validity of a quantitative instrument, or procedures of analysis that could be valuable in a follow-up comprehensive research investigation (Viechtbauer et al., 2015). After IRB approval, a pilot study was conducted to assess the instrument's reliability and validity. The pilot study data included analysis using Cronbach's alpha to determine internal consistency of the instrument.

Frazer (2011) and Lee (2016) used and modified the ICS. Frazer used the ICS to investigate the relationship between the internal control system and the protection of assets, the

segregation of duties, and the verification of transactions of small business restaurants operating in Nassau County in New York State. Lee used the ICS to investigate the relationship between the internal control best practice and the number of training accounting personnel, the attitude towards internal control, the degree of segregation of duties, and volunteers of a small not-for-profit organization located within the northeast region of Indiana. The ICS instrument was appropriate for this study because previous researchers such as Kistler (2008), Frazer and Lee used the ICS instrument to investigate the internal control system of an organization, which is the dependent variable of this research study.

Kistler's (2008) primary sources to develop the ICS were questions and ideas from previous studies on churches' internal control systems (Duncan, 1995; Nicholas, 1980; Smith, 1983), literature on church internal controls by Vargo (1989) and Schiff, Miller, and May (1989), and the American Institute of Certified Public Accountants (AICPA) Audit and Accounting Guide: Not-for-profit organizations by the American Institute of Certified Public Accountants (2004). Kistler's secondary sources included literature on internal control in churches from Kistler (1974), Kluvers (2001), and Leathers and Sanders (1972). Kistler considered the Protestant Worship Centre Financial Control System and the minimum for-profit public company business internal control standards.

In Kistler's (2008) research study, the independent variables were (a) the number of trained accounting personnel, (b) the attitudes towards internal controls, and (c) the degree of segregation of duties. The dependent variable was the internal controls within a church (Kistler, 2008). The purpose of the ICS was to test the correlation among the independent variables to the dependent variable (Kistler, 2008).

Researchers suggested using or adapting existing surveys when researchers seek to assess a previously investigated variable (Ruel, Wagner, & Gillespie, 2016). Kistler's (2008) ICS for not-for-profit churches research, Frazer's (2011) ICS adapted for-profit small business restaurants, and Lee (2016) ICS adapted for small not-for-profit organization carefully tested the ICS for validation and reliability. For this study, a pilot study was conducted to assess Kistler's (2008) ICS adapted instrument's reliability and validity.

The target population for this research study was business owners and managers of gas and convenience stores located in Puerto Rico; the supervisors' primary language is Spanish. Using the back-translation method, the ICS was translated into the target population's primary language, Spanish. The back-translation method consists of translating a survey back into the original language to determine inconsistencies between the two versions (Behr, 2016). Inconsistencies might befall because of errors in the translation from the survey into the target language (Behr, 2016). A business administration faculty member with a doctoral degree in business administration and a major in management, fluent in Spanish and English and familiar with the area of study and purpose of the original ICS instrument forward translated the ICS from English into Spanish (see Appendix C). A different bilingual business administration faculty member with a Master of Science and major in business education, who was not familiar with the original English version, back-translated the ICS Spanish version into the original language. Two certified public accountants and a certified fraud examiner agreed with the translators upon the ICS final Spanish version.

Babbie (2017) stated that reliability is a fundamental notion of measurement that means consistency over time and internal consistency. Kistler (2008) tested the internal consistency

reliability using the Cronbach's alpha to estimate the survey items' intercorrelation, to assess if the items were measured the same adequacy of financial controls. Kistler reported a Cronbach's alpha reliability test result of 0.749, demonstrating an acceptable internal consistency (Kistler, 2008).

Frazer (2011) adapted Kistler's ICS to investigate small business restaurant instead of Protestant churches' worship centres. Frazer considered Kistler's ICS validity and reliability confirmation. Frazer conducted a pilot test (test-retest approach), administered to 10 restaurants, to assess the suitable instrument's reliability and validity (Frazer, 2011). Frazer used the analysis of Pearson's correlation coefficient (r) to measure the correlation between the tests and retest data for each scale on the survey: internal control, protection of assets, segregation of duties, and verification of transactions. The correlation coefficients ranged from 0.995 to 1.00 with all p -values equal to 0.000 for each scale of the survey, which is less than an alpha of 0.00. The correlations between the test and retest responses indicated that the instrument was reliable across time (Frazer, 2011).

Lee (2016) measured internal consistency reliability using a Cronbach's alpha to estimate the survey items' intercorrelations and assessing if the items are measuring the same construct (adequacy of financial controls), a result of 0.749 indicated an adequate internal consistency. Kistler (2008) ICSQ, Frazer (2011) ICSQ, and Lee (2016) ICSQ showed an acceptable result of 0.749 of the Cronbach's alpha reliability test.

Data Collection Technique

Quantitative data collection techniques used by researchers consist of experiments, surveys, and nonreactive methods such as content analyses (Bordens & Abbott, 2018). There are

several types of survey designs to choose from, such as mailed, or Internet-delivered pen-and-paper survey, face-to-face interviews, face-to-group interviews, telephone interviews, written, or some combination of these (Ruel et al., 2016). The self-administered survey is one of the most common approaches to data collection (Babbie, 2017).

The advantages of using a survey are twofold: the economy and the ease of data collection. The two most important motives for researchers to use a self-administered survey instrument design instead of an interviewer-administered design are (a) the costs tend to be lower, and (b) the accessibility of the participants (Ruel et al., 2016). The costs of this study consist of copies of the survey instrument, gasoline expenses and the time employed in the survey administration. The disadvantages of self-administered survey instrument approach are the problem of question order where the participant may look over the entire survey instrument before beginning to answer, complex questions may be left in blank, and lower response rates (Singleton & Straits, 2018).

In this study, the data collection technique was a self-administered survey instrument conducted in person. After obtaining IRB approval, I conducted a pilot study, by contacting 10 participants by phone or by e-mail and invited them to take part in the pilot study and scheduled a business location visit (see Appendix A). I visited the individuals who agreed to participate to administer the survey instrument. The participant answered the survey instrument without assistance and did not include his/her name to make it anonymous. The pilot study data collected were analyzed using the Statistical Package for the Social Sciences (SPSS) Version 25. A summary of the analysis of raw data is available in Section 3.

Following the approval from IRB and the pilot study, I continued with the follow-up survey. I contacted the participants by phone or by e-mail to invite them to take part in the study and to schedule a business location visit (see Appendix A). I distributed the survey instrument to individuals who agreed to participate. The participant answered the survey instrument without my assistance and did not include his/her name to make it anonymous. Low responses to the initial telephone conversation required a personal visit to the business to explain the research study objective.

Data Analysis

Investigating internal business control systems in small Puerto Rican retail businesses was the purpose for undertaking this quantitative correlation study. I examined the potential relationship between the degree of segregation of duties, the attitude toward internal controls, and the internal control system of small gas and convenience stores. The independent variables were the degree of segregation of duties and the attitude toward internal controls, and the dependable variable was the internal control. The research question for this study was:

What is the relationship, if any, between the degree of segregation of duties, the attitude toward internal controls, and the internal control system in small gas and convenience stores in Puerto Rico?

H0: There is no statistically significant predictive relationship between the degree of segregation of duties, the attitude toward internal controls, and the internal control system in small gas and convenience stores.

H1: There is a statistically significant predictive relationship between the degree of segregation of duties, the attitude toward internal controls, and

the internal control system in small gas and convenience stores.

After the data collection process, researchers select a computer program to evaluate their statistics. Researchers can choose among the following specialist statistics software: SPSS, Stata or SAS (Dawson, 2017). The most commonly used statistical software packages in social science study are IBM SPSS Statistics, which is a comprehensive package that can perform highly difficult data manipulation and analysis with straightforward instructions (Babbie, 2017). I selected SPSS Version 21 to analyze the data because it is a multipurpose statistics program used by many researchers to perform various types of analyses such as descriptive statistics, correlation, linear regression, and multiple regression analysis (Bordens & Abbott, 2018).

Heppner et al. (2016) stated that research questions and the level of measurement of variables influence the selection of the data analysis technique in quantitative research design. There are several types of data analysis techniques, such as path analysis, factor analysis, multivariate analysis of variance (MANOVA), and regression analysis, that underlie the relationship between two or more independent variables and a dependent variable (Bordens & Abbott, 2018). Researchers use MANOVA as a data analysis technique to examine whether group differences take place on more than one dependent variable (Salkind, 2018). Researchers use factor analysis to investigate variable relationships for complex concepts such as socioeconomic standing, and nutritional patterns were observed variables have comparable patterns of responses (Pituch & Stevens, 2016). Multiple regression analysis is a statistical technique for investigating the mutual relationship of more than one independent variable with one dependent variable (Keith, 2015). Pearson's product-moment correlation measures the

relationships between two groups of continuous data, one independent and one dependent interval-ratio-level variable (Puth, Neuhäuser, & Ruxton, 2015).

The discipline of statistics can be divided into the two general groups called descriptive statistics and inferential statistics (Leavy, 2017). Researchers use descriptive statistics to simplify and communicate research results effectively (Keith, 2015). Descriptive statistics are concerned with the collection, organization, summary, and presentation of data regarding a target population (Bordens & Abbott, 2018). Inferential statistics measure data and generalize findings from a sample to a target population of interest (Bordens & Abbott, 2018). I used descriptive statistics to calculate the sample's mean and standard deviation for the three study variables.

The study will include a multiple regression analysis to determine if there is a relationship between the two independent variables, the degree of segregation of duties and occupational fraud prevention, and the dependent variable, or internal control. The multiple regression analysis techniques are the most appropriate for this research study because researchers used this data analysis technique to investigate one dependent and two independent interval levels of measurement variables. Researchers use the Likert summated rating method for scaling of responses on surveys and instruments investigations (Finch, Finch, McIntosh, & Braun, 2018). The study data are an interval level and rated on a negative-to-positive five-point, summated, Likert-type scale.

The most common assumptions are outliers, linearity, normality, multicollinearity, homoscedasticity, and independence of residuals (Gordon, 2015). An outlier is a value that falls far from the normal range of the data (Gordon, 2015) For multiple regression analysis, researchers, especially assess for outliers on the outcome variable (Gordon, 2015). A boxplot is a

graphical procedure for identifying outliers, where a visual examination of the graphical analysis can regularly detect the outliers (Keith, 2015). The study included a boxplot to validate the outlier assumptions of this doctoral study.

The assumption of linearity in a multiple regression data analysis is the assumption that there is a straight-line relationship between two continuous variables (Bordens & Abbott, 2018). Specifically, researchers assess the linearity assumption to determine if the rate of change, between scores on two variables, is constant for the whole range of scores for the variables (Bordens & Abbott, 2018). If the linearity assumption is violated, then the regression coefficients, standard errors, tests of statistical significance estimates may be biased, meaning that the regression R² estimates will probably not reproduce the true population values (Keith, 2015). Testing for nonlinearity is one method of determining whether the assumption of linearity is violated (Keith, 2015). Another way to validate the linearity assumption is using a scatterplot, where the points on the scatterplot should form a straight line and the regression line should take a middle-of-the-road path through the points (Bordens & Abbott, 2018; Gebremedhin, Workicho, & Angaw, 2019). The study included the scatterplot to validate the linearity assumptions of this doctoral study.

The normality assumption in multiple regression analysis means that each variable and all linear combinations of the variables are normally distributed (Keith, 2015). Testing for normality includes creating a histogram with a normal curve for the sample data (Bordens & Abbott, 2018). Researchers will assess for the normality assumption by screening their data using a proper inferential test, either the Kolmogorov-Smirnov test or the Shapiro-Wilk test (Pituch & Stevens,

2016). The study included a histogram to validate the normality assumptions of this doctoral study initially.

Keith (2015) stated that multicollinearity assumptions imply that researchers are trying to use two independent variables that overlap entirely or almost entirely with one another. Multicollinearity arises when a number of predictor variables correlate at an extremely high level with one another or when one predictor variable is a near linear combination of other predictor variables (Keith, 2015). Researchers use the variance inflation factors (VIF), the significant model F but no significant individual coefficients, and the rising standard errors in models with control methods to diagnose multicollinearity (Gordon, 2015). The VIF measures how much the variance is inflated and exposes the occurrence or nonexistence of multicollinearity (Pituch & Stevens, 2016). The study included an SPSS software output section on collinearity statistic to quantify the multicollinearity assumptions of this doctoral study initially.

Researchers explain the assumption of independence using the procedures of data collection (Bordens & Abbott, 2018; Ke, Zhang, Song, & Wan, 2018). If the data, create a simple random sample drawn from a large population, then the independence assumption will be reached to a close approximation (Pituch & Stevens, 2016). The homoscedasticity assumption refers that one variable displays similar amounts of variance across the range of values for a second variable (Bordens & Abbott, 2018). The assumption of homoscedasticity implies that the variance of the errors of the regression line is stable across levels of the independent variable (Keith, 2015). If the homoscedasticity assumption is violated the standard errors are affected (Keith, 2015). The study included a scatter plot of residuals with independent variables to test the

homoscedasticity assumption (Keith, 2015). The study included an SPSS graph to check the bivariate plots for departures from linearity and homoscedasticity.

To analyze the data entry, researchers performed several tasks on a data, such as examining for ineligible values and observing for data error or missing data (Dawson, 2017). Errors arise during the data entry process when researchers unintentionally press a 5 on the keypad when a 2 should have been pressed (Ruel et al., 2016). Missing data may develop when the survey data is lost, participants miss questions, or participants decline to answer a question (Ruel et al., 2016). To minimize data entry errors, researchers stay alert to the need of making careful observations to confirm the precision of data transcription (Bordens & Abbott, 2018). Another solution to decrease data entry error is to have the data entered twice by two independent persons (Ruel et al., 2016).

Study Validity

Reliability and validity are distinct but corresponding concepts that describe the usefulness of a measurement instrument (Dawson, 2017). Research study validity relates to the truthfulness of the interpretations drawn from a research investigation (Patino & Ferreira, 2018). All forms of validity are adequate to experimental and quasi-experimental investigation; internal validity is not appropriate to nonexperimental investigation, such as survey and correlation methods (Edmond & Kennedy, 2017). The purpose of this doctoral study is to examine the relationship, if any, between the degree of segregation of duties, the attitude toward internal controls, and the internal control system of small gas and convenience stores. This research study was a nonexperimental research design; threats to internal validity did not apply. Nevertheless, the potential threats to statistical conclusion validity is a concern.

Statistical conclusion validity is appropriate for all investigations within quantitative methods that researchers use to discuss the meaning of statistical analyses and its relation to investigation design (Edmond & Kennedy, 2017). Conclusion validity focuses on the problem of discrepancy between the findings and conclusions (Suter & Suter, 2015). Statistical conclusion validity addresses, Type I statistical error and Type II statistical error that concern to wrong decisions regarding the null hypothesis and other statistical effects in the investigation, including power and reliability (Heppner et al., 2016).

A Type I error arises when a researcher states that a relationship exists between the independent and dependent variables, when in fact, there is no relationship provoking an incorrect rejection of a null hypothesis (Bordens & Abbott, 2018). To protect against Type I error, researchers maintain alpha at .05 or less, knowing that there is a small possibility to make an error (Leavy, 2017). The sample size for this research study was determined using an alpha level of 0.05. Type II error arises when the investigator fails to reject the null hypothesis (Leavy, 2017). To decrease the probability of making a Type II error, without increasing the probability of making Type I errors, researchers increase the number of research participants (Matuschek, Kliegl, Vasishth, Baayen, & Bates, 2017).

The validity of the study's findings is limited to the reliability of the instrument used. I modified Kistler's (2008) ICS for use by owners and managers of gas and convenience stores located in Puerto Rico. Frazer (2011) and Lee (2016) also used and modified the ICS. Frazer conducted a pilot test (test-retest approach), administered to 10 restaurants, to assess the suitable instrument's reliability and validity (Frazer, 2011). Kistler (2008), Frazer (2011), and Lee (2016)

measured the ICS instrument validity for-profit and not-for-profit organizations with an acceptable Cronbach's alpha reliability test result of 0.749.

Summary and Transition

Section 2 included the purpose statement, a description of the role of the research, the population and the research method and design for this investigation. The section included description of the role of the ethical research, sampling, data collection method, and the research instrument. Finally, I described the design analysis to guarantee the validity and reliability of the findings.

Section 3 includes details of the data collection, the study results, and the relationship of the results to the purpose and research question. Section 3 also includes the application to professional practice, the investigation's implications for social study, and recommendations for further study, and final summary that concludes the investigation.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this quantitative correlational study was to examine the relationship, if any, between the degree of segregation of duties, the attitude toward internal controls, and the internal control system of small gas and convenience stores. The study included two independent variables: the degree of segregation of duties and attitude toward internal controls. The dependent variable was an internal control system. The model showed that the degree of segregation of duties and the attitude toward internal controls significantly predicted the internal control system $F(2, 126) = 49.158, p < .01, R^2 = .438$. Hence, the null hypothesis was rejected, and the alternative hypothesis was accepted.

Presentation of the Findings

In this subheading, I discussed the results resulted to testing the assumptions, presentation result of descriptive statistics, presentation results of inferential statistic results, provision of a theoretical conversation pertaining to the findings, and concluded with a concise summary. I employed Bootstrapping, using 2,000 samples, to address the possible influence of assumption violations. Thus, bootstrapping 95% confidence intervals was applied where appropriate.

Pilot Study

For the purpose of this research study, a pilot study was conducted to assess the instrument's reliability. A group of 10 owners and managers of small gas and convenience stores in Puerto Rico participated in a pilot survey. Reliability was measured using Cronbach's alpha analysis to demonstrate internal consistency, using IBM SPSS Version 25. The degree of segregation of duties (independent variable), the attitude toward internal control (independent

variable), and internal control (dependent variable) showed satisfactory reliability with Cronbach's alpha scores of 0.785, 0.695, and 0.885, respectively.

The instrument reliability was also assessed with the actual research study sample. The degree of segregation of duties (independent variable) and the internal control (dependent variable) showed satisfactory reliability with Cronbach's alpha scores of 0.643 and 0.807, respectively. The Cronbach's alpha score for the attitude toward internal control (independent variable) was 0.477, low reliability, which is common with a small number of items. Table 2 shows the Cronbach's alpha results of the pilot study and the research study sample.

Table 2

Cronbach's Alpha Score

Variable	Pilot study	Actual sample
Segregation of duties	0.785	0.643
Attitude toward IC	0.695	0.477
Internal Control	0.885	0.807

Test of Assumptions

The assumptions of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals were evaluated. The result showed that some of the assumptions were violated. Hence, bootstrapping, using 2,000 samples, made it possible to combat the influence of assumption violations.

Multicollinearity. Multicollinearity was evaluated by viewing the correlation coefficients among the predictor variables. All bivariate correlations were small to medium

(see Table 3); therefore, the violation of the assumption of multicollinearity was not evident.

The following table contains the correlation coefficients.

Table 3

Correlation Coefficients Among Study Predictor Variables

Variable	Segregation of duties	Attitude toward IC
Segregation of duties	1.00	.475
Attitude toward IC	.475	1.00

Note. $N = 129$.

Outliers, normality, linearity, homoscedasticity, and independence of residuals. Outliers, normality, linearity, homoscedasticity, and independence of residuals were evaluated by examining the normal probability plot (P-P) of the Regression Standardized Residual (see Figure 5) and the scatterplot of the standardized residuals (see Figure 6). The examinations indicated there was a violation of these assumptions. The tendency of the points not to lie in a reasonably straight line (see Figure 5), diagonal from the bottom left to the top right, provides supportive evidence that the assumption of normality has been grossly violated (Pallant, 2010). The clear or non systematic pattern in the scatterplot of the standardized residuals (see Figure 6), supports the tenability of the assumptions were not met. However, 2,000 bootstrapping samples were computed to combat any possible influence of assumption violations and 95% confidence intervals based upon the bootstrap samples are reported where appropriate.

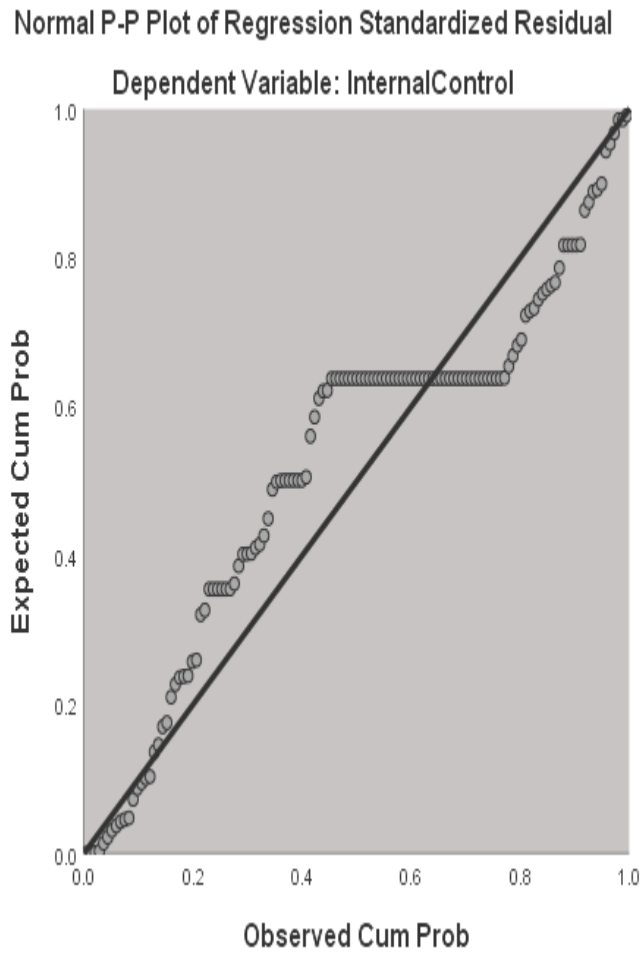


Figure 5. Normal probability plot (P-P) of the regression standardized residuals.

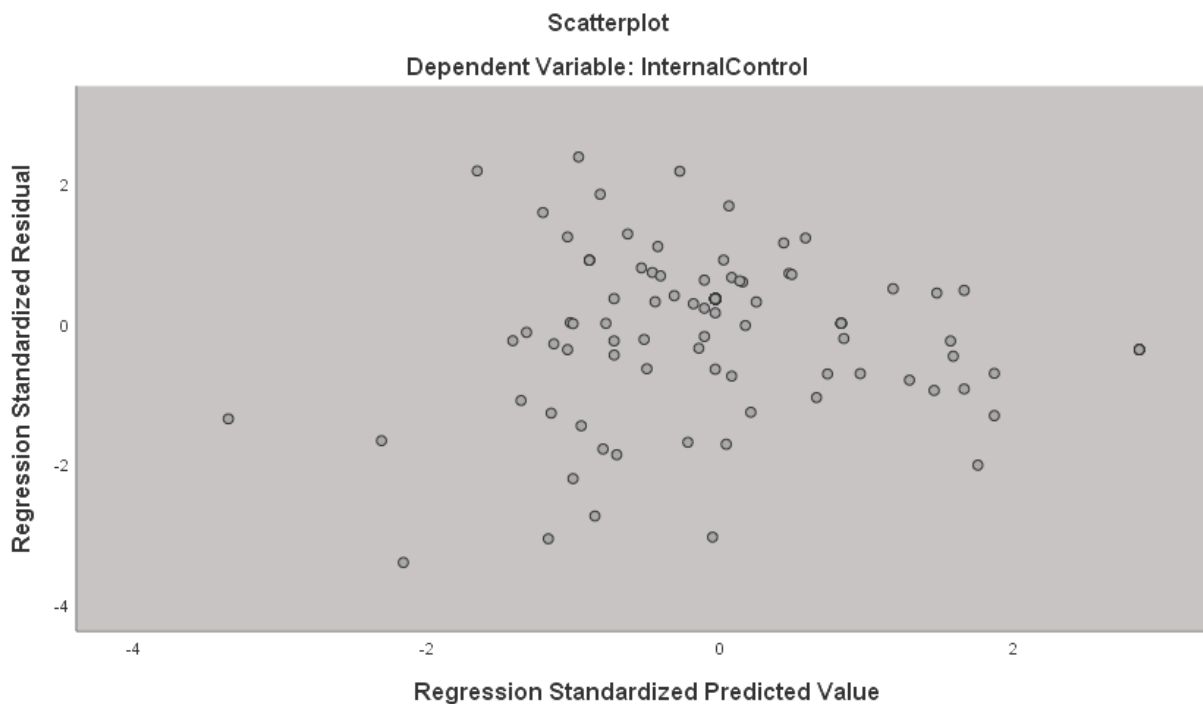


Figure 6. Scatterplot of the standardized residuals.

Descriptive Statistics

In total, I received 133 surveys. Four records were eliminated due to missing data, resulting in 129 (97%) records for the analysis. Table 4 contains descriptive statistics of the study variables.

Table 4

Means, Standard Deviations, and 95% Confidence Intervals for Study Variables

Variable	<i>M</i>	<i>SD</i>	Bootstrapped 95% CI (<i>M</i>)
Internal Control	39.40	6.59	[38.16, 40.47]
Attitude Towards Internal Control	25.19	3.54	[24.57, 25.79]
Segregation of Duties	20.98	4.55	[20.18, 21.74]

Note: $N = 129$.

Inferential Results

Standard multiple linear regression, $\alpha = .05$ (two-tailed), was used to examine the degree of segregation of duties and the attitude towards internal control in predicting internal control. The independent variables were the degree of segregation of duties and the attitude towards internal control. The dependent variable was the internal control. The null hypothesis was that the degree of segregation of duties and the attitude towards internal control would not significantly predict internal control. The alternative hypothesis was that the degree of segregation of duties and the attitude towards internal control would significantly predict internal control. Preliminary analyses were conducted to assess whether the assumptions of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals were met; serious violations were noted (see the subsection, Tests of Assumptions, above). The model was able to significantly predict internal control, $F(2, 126) = 49.158, p < .01, R^2 = .438$. The $R^2 (.438)$ value indicated that approximately 43% of the variations in internal control is accounted for by the linear combination of the predictor variables (the degree of segregation of duties and the attitude towards internal control). In the final model, the degree of segregation of duties and the attitude towards internal control were both statistically significant with attitude towards internal control ($B = .895, t = 6.336, p < .01$) accounting for a higher contribution to the model than the degree of segregation of duties ($B = .407, t = 3.702, p < .05$). The final predictive equation was as follows: internal control = 8.332 + .895 (attitude towards internal control) + .407 (degree of segregation of duties).

Attitude towards internal control. The positive slope for attitude towards internal control for (.895) as a predictor of internal control indicated there was about a .895 increase in

internal control for each one-point increase in attitude towards internal control. In other words, internal control tends to increase as the attitude towards internal control increases. The squared semi-partial coefficient (sr^2) that estimated how much variance in internal control was uniquely predictable from the attitude towards internal control was .18, indicating that 18% of the variance in internal control is uniquely accounted for by attitude towards internal control when the degree of segregation of duties is controlled.

Segregation of duties. The positive slope for the degree of segregation of duties (.407) as a predictor of internal control indicated there was .407 increases in internal control for each additional one-unit increase in the degree of segregation of duties, controlling for attitude towards internal control. In other words, internal control tends to increase as the degree of segregation of duties increases. The squared semi-partial coefficient (sr^2) that estimated how much variance in internal control was uniquely predictable from the degree of segregation of duties was .06, indicating that 6% of the variance in internal control is uniquely accounted for by the degree of segregation of duties, when the attitude towards internal control is controlled. The following table depicts the regression summary table.

Table 5

Regression Analysis Summary for Predictor Variables

Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>p</i>	<i>B</i> 95%
						Bootstrap CI
Attitude Towards Internal Control	.895	.162	.481	6.336	. < .01	[.529, 1.195]
Segregation of Duties	.407	.176	.281	3.702	.021	[.097, 0.794]

Note: *N*= 129.

Analysis summary. The purpose of this study was to examine the relationship, if any, between the degree of segregation of duties, the attitude toward internal controls, and the internal control system. I used standard multiple linear regression to examine the ability of the degree of segregation of duties and the attitude toward internal controls to predict the value of internal control. Assumptions surrounding multiple regressions were assessed with some violations noted. The conclusion from this analysis is that the degree of segregation of duties and the attitude towards internal control variables is significantly associated with internal control, even when weight is controlled (e.g., held constant).

Theoretical discussion of findings. The findings of this study confirmed the findings of other researchers. Kistler (2008) in a study of not-for-profit Protestant churches found a significant linear regression between the degree of segregation of duties, the leaders' attitude toward internal control and the internal control system of churches. Kistler's study results suggested that church leaders within the Protestant worship centers should assume a serious attitude toward internal controls and should take further steps to guarantee their implementation. Kistler stated that church leaders should know that fraud and financial abuse of church resources can take place. Kistler concluded that segregation of duties and other internal controls need to be established at Protestant churches.

The findings from this study extended and supported findings from the Lee (2016) study of small not-for-profit organizations. Lee (2017) concluded that there is a significant correlation and linear relationship between the degree of segregation of duties, leaders' attitude towards internal controls and the level of accounting and internal controls. Lee (2017) concluded that

leaders of small not-for-profit organizations must understand that fraud can occur in their organizations and must realize the need to establish appropriate internal controls.

The theoretical framework for this study, the fraud triangle theory and COSO integrated framework, helped to explain the meaning and the findings of this study. The fraud triangle theory incorporates three elements (pressure, opportunity, and rationalization) that produces favorable environments for executing fraud (Cressey, 1986). Small businesses that implement the COSO internal controls framework could increase operating profits and prevent fraud (Mutnuru, 2016). Donelson et al. (2017) concluded that weak internal controls relate to a higher risk of hidden accounting fraud. Persistently, administrators consider organizations internal control systems and segregation of duties for preventing and diminishing the opportunities for occupational fraud (Peters & Maniam, 2016). Therefore, business owners and managers must understand that there is a relationship between the degree of segregation of duties, attitude towards internal control and the internal control system of their organization in order to identify and assess risks of occupational fraud and to identify opportunities to improve the organization internal control system.

Applications to Professional Practice

The objective of this study was to determine the potential relationship, if any, between the degree of segregation of duties, the attitude toward internal controls, and the internal control system of small gas and convenience stores in Puerto Rico. The findings led to the rejection of the null hypothesis because a statistically significant relationship exists between the degree of segregation of duties, the attitude toward internal controls, and the internal control system of

small gas and convenience store in Puerto Rico. This is the first internal control study within the gas and convenience stores business in Puerto Rico.

The finding of this research study is relevant to small business owners and managers to improve organizations' internal control systems by gaining an understanding of the relationship between the degree of segregation of duties, the attitude toward internal control, and the internal control system. Small business owners and managers need to develop and establish an effective internal control system to diminish the opportunity of occupational fraud.

Implications for Social Change

Social change may occur from the investigation results, as these results contribute to identifying the value of a comprehensive internal control system that may prevent and discourage occupational fraud. Small business owners and managers' awareness of the relationship between the degree of segregation of duties, attitude towards internal control, and internal controls might increase their disposition to implement or establish an internal control system to diminish opportunities to commit fraud. By decreasing the perceived opportunity to commit occupational fraud, small business owners and managers could prevent bankruptcy risk and create employment stability. Customers and society could benefit from companies who effectively implement an internal control system to prevent and detect occupational fraud. This action may decrease fraud activities, which could develop a stable and reasonable price system.

Small business owners and managers can improve their challenges to prevent and detect fraud, even with limited financial funds, to achieve the maximum potential of their organizations. (Hess & Cottrell, 2015). Through the understanding of the existing relationship between the degree of segregation of duties, attitude towards internal control, and internal controls, small

business owners and managers may become interested in engaging in a low-budget internal control system for their business to successfully reach its goals. In doing so, the full potential of their business could be unleashed. The establishment of a solid control system may provide a sense of empowerment to the managers and business owners over potential fraud occurrences. In addition, accounting program faculty members from higher education could share the findings from this study to prepare their students for future financial and accounting advisory services.

Recommendations for Action

Small business operating fraud losses are disproportionate to larger organizations due to a lack of internal controls (Glodstein, 2015). The findings of this study are relevant to improving business practices by helping owners and managers of gas and convenience stores in Puerto Rico in understanding that there is a significant relationship between the degree of segregation of duties, attitude towards internal control and the internal control system of an organization. Kennedy (2017) suggested that small business owners should not engage in one fraud prevention and detection strategy at a time; instead small business owners must incorporate their own abilities and capacities, members of staff resources, and the assistance of outside consultants to elaborate efficient fraud prevention strategies. Therefore, small business owners and managers need to pay attention to the results of this study, as the findings might add value to knowledge of fraud prevention and detection techniques.

Based on the findings, my recommendations for small business owners and managers include (a) hiring an accountant to evaluate the organization's internal control system, (b) establish or improve a low budget custom made internal control system to prevent and detect occupational fraud, (c) periodic analysis of budget expenses with actual expenses, (d) employee

training and conference about internal controls, occupational fraud and its negative effect to business operations, (e) small business owners and managers' training and workshops to overcome the challenge to implement an effective internal control system, and (f) the establishment of segregation of duties by assigning different employees the responsibilities of authorizing and recording transactions, maintaining custody of related assets, and reconciling accounts provides for more effective internal controls.

Small and large business owners and managers of any industry, investors, accountants and financial advisors, college students and instructors, and other researchers may benefit from the study. The study findings confirmed that there is a significant relationship between the degree of segregation of duties, attitude towards internal control and the internal control system of an organization. Researchers may find the study findings useful for further research. I plan to share the findings of this study through the publication of articles, conferences, workshop and in my courses.

Recommendations for Further Research

The findings of the study may benefit small business owners and managers in Puerto Rico. The study findings established that there is a significant relationship between the degree of segregation of duties, attitude towards internal control and the internal control system of an organization. Therefore, small business owners and managers could benefit from future studies on how to assess the effectiveness of an internal control system to protect their businesses from occupational fraud. Further research could consider a qualitative case study, that contrary to this research study, participants will be allowed to explain questions asked about the degree of segregation of duties, attitude towards internal control and internal controls. The qualitative case

study could explore how do small business owners and managers assess the effectiveness of the organization internal control system. Questions that may be considered for a further qualitative study include (a) What are the principal barriers small business owners and managers encounter when implementing internal controls for detecting and preventing occupational fraud? (b) What strategies do small business owners and managers use to establish internal control principles such as segregation of duties, documentation, policies and procedures, and employee security access to the database? and (c) What effect does the implementation of internal controls have in the sense of empowerment of the managers and owners of these businesses?

The target population for this study includes business owners and managers of gas and convenience stores located in Puerto Rico. Further research could be conducted considering other small business industries in Puerto Rico. Also, researchers could study the effects of the significant relationship between the degree of segregation of duties, attitude towards internal control and the internal control system of a small business organization during the first 5 years of operations.

Future researchers about small business internal controls and occupational fraud could also bring awareness about business fraud risk in small retail businesses. Further research could consider the cost-benefit criteria when it comes to pondering the establishment of an internal control system. Further research could measure the small business cost of occupational fraud due to weak internal controls. Finally, further research could measure how higher education institutions integrate into their accounting curriculum the training and education of internal control system as a fraud detection and prevention tool.

Reflections

The academic journey towards obtaining a DBA in Accounting at Walden University has been both challenging and rewarding. Looking back one of the most significant challenges was the devastation left in the Island after Hurricane Maria. There was no electricity, internet or the necessary conditions to keep the pace and the enthusiasm I had at the time. Yet, the support from the Walden faculty, classmates and my family got me through and kept my spirits up.

When I first thought of pursuing the DBA, I felt somewhat insecure because English is not my first language. However, this has become one of the most rewarding experiences. I feel confident, and although there is always room for improvement, I am very proud of the accomplishments in this area.

I decided to work on a quantitative research study. However, this represented a serious challenge. I had to find an instrument, in this case a questionnaire from previous academic research, work in the translation process and conduct a pilot study. This challenge became an excellent learning experience. I am grateful of the opportunity I have had through the Residencies and the courses to get to know people from all walks of life from whom I learned great lessons and have become friends in the process.

In regard to my research, the target population represented a significant challenge. Many were reluctant to participate because they feared that the data would be shared with government authorities. I learned to listen and found ways of gaining their trust by emphasizing on the benefits this study represents for the owners and managers of small businesses. Once participants engaged in the study, they expressed the need for internal controls for their businesses.

On a more personal level as an accounting professor, this research enriched significantly the accounting courses that I teach. I have revised my courses to include topics and tasks that are of great value for those students who will pursue graduate studies. I included within the course requirements the literature review through annotated bibliography exercises. Also, I included the case study analysis regarding fraud to give students the opportunity to develop awareness of such occurrences. Finally, a course in Forensic Accounting will be offered for the first time in the BA Degree, and it has been assigned to me. I will include a mock trial activity to make the course as close to a real scenario as possible.

As the journey is coming to an end, it is also a new beginning. I look forward to continuing my scholarly work to engage in research and publish in this topic, following the recommendations I proposed for future studies.

As a Walden alumnus, I am committed to becoming an agent of social change in this topic utilizing different mechanisms to create awareness and motivate managers and small business owners to implement internal control systems. Finally, I will continue to motivate and inspire my students to pursue graduate studies and engage in research activities that will contribute to their personal and professional development. My research is the first of this nature in Puerto Rico; I hope it is not the last.

Conclusion

Some small business owners and managers do not know the relationship between the degree of segregation of duties, the attitude toward internal controls, and the internal control system in a business organization. The purpose of this quantitative correlational study was to examine the relationship, if any, between the degree of segregation of duties, the attitude toward

internal controls, and the internal control system. The theoretical framework for this study was based on the fraud triangle theory and COSO Internal Control Integrated Framework. This study concluded that there is a significant relationship between the degree of segregation of duties, attitude towards internal control and the internal control system of an organization.

Small business owners and managers' awareness and understanding of the significant relationship between the degree of segregation of duties, attitude towards internal control and the internal control system of an organization could be the first step to establish an internal control system. In doing so, business owners and managers will potentially get the most out of their businesses and diminish occupational fraud occurrence.

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Appendix A: Invitation Letter

Hello,

My name is Belma A. Borrás and I am a Walden University Doctoral Student in Business Administration with a major in Accounting. I am conducting a research to examine relationship between Puerto Rican small retail business internal controls system, the degree of segregation of duties, and occupational fraud prevention. The population addressed in this study includes owners and managers of gas and convenience stores located in Puerto Rico.

As an owner of gas and convenience stores' I will like to invite you to participate in the research study. The in-person survey will take 10-15 minutes.

Thank you,

Belma Borrás

Appendix B: Permission to Modify Research Instrument

David S. Kistler <kistleds@potdam.edu>

6 jun. 2015
6:48

Prof. Belma A. Borrás Osorio

Please feel free to use my questionnaire and change whatever you need to.
I am delighted that you found it useful.

Sincerely,
Dr. David S. Kistler

Appendix C: Survey Questions

Dependent Variable Questions: Internal control

Question	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
1. What is the likelihood that a financial audit is conducted on a yearly basis?					
2. Would the audit be conducted by a CPA firm?					
3. What is the likelihood that budget to actual expenses are monitored/compared?					
4. What is the likelihood that people involved in financial aspects are bonded?					
5. What is the likelihood that an accounting procedures manual is used?					
6. What is the likelihood that an annual update of inventory, equipment, and other non-cash assets is made?					
7. What is the likelihood that purchases are pre-approved?					
8. What is the likelihood that only financial leaders handle the business credit cards?					

9. What is the likelihood that cash receipts are deposited directly after business hours?

10. What is the likelihood that disbursements are within the approved budget?

Independent Variable #1 Questions-Attitude towards internal control system

Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Is it important in having an accounting background in the handling of the business financial affairs?					
2. Is it important to keep within the approved annual budgeted amount for expenditures?					
3. Should business managers be allowed to make disbursements not in the budget?					
4. Is having an audit of the business financial books important?					
5. Are people who handle the business financial affairs monitored?					
6. Are new personnel screened by an outside firm?					

-
7. What is the likelihood that someone working for the business would purposely misuse or misappropriate money?
-

Independent Variable #2 Questions: degree of segregation of duties

Question	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
1. Is more than one signature required on check?					
2. Are the people counting cash rotated?					
3. Are monthly bank reconciliations prepared by someone other than the person writing the checks?					
4. Is cash deposited immediately after regular business hours?					
5. Is the counting of cash controlled by more than two people?					
6. Are cashed checks compared with bills or receipts?					
