Walden University

College of Management and Technology

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Timothy Bergsma

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Walden University
2015

Abstract

General Strain Theory as a Predictor of Occupational Fraud

by

Timothy William Bergsma

MBA, Grand Valley State University, 2001

BBA, Davenport College of Business, 1995

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Applied Management and Decision Sciences

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Abstract

The world economy loses an estimated $3.5 trillion annually due to fraud. A weakened economy leads to additional hardships for individuals, families, and organizations. General strain theory (GST) posits that certain strains lead to negative emotional responses, and the result is delinquent behavior. The purpose of this research was to analyze the relationship between strain and occupational fraud through the theoretical framework of GST. This study related to the field of management through the study of individual behaviors in relation to occupational consequences. The research questions addressed (a) occupational frauds as measured by strain levels of perpetrators, (b) the relationship between strain scores and the different occupational fraud types, and (c) the significance of the relationship between fraud motivation and each of the occupational fraud types. A quantitative, cross-sectional study using secondary data from the ACFE Report to the Nations on Occupational Fraud and Abuse database, was conducted to examine the relationship between strain, negative emotionality, and occupational fraud crimes. To examine this relationship a sample of 2,910 cases were tested using nominal regression, logistic regression and Pearson Correlation. The results indicate that strain is significantly related to asset misappropriation and financial statement frauds. Work-related motivation is significantly related to financial statement frauds. Scholars and practitioners should focus on agendas related to strain, work-related motivation, and financial statement frauds. Fewer fraud losses will positively impact society through increased employment opportunities, additional tax revenues for all levels of government, and increased cash flows for investors.

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Dedication

This dissertation is dedicated to my wife and sons. Each of them has demonstrated, in their own way, what it means to persevere and never give up. This dissertation is another tangible demonstration of perseverance and is dedicated to them. Never, ever, give up on your dreams and goals.

Acknowledgments

I want to acknowledge the love and enduring support of my wife. She sacrificed much so that I could complete this dissertation and degree. I want to acknowledge the encouragement and understanding of my two sons. They have been an incredible source of encouragement to me.

I want to acknowledge the thoughtful and constructive support of my mentor, Dr. Prinster. His positive attitude and guidance have shaped me in many ways. I want to acknowledge the wonderful teaching and guidance of Dr. Levasseur. His great teaching ability has helped me develop into a scholar-practitioner.

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Chapter 1: Introduction to the Study

The Association of Certified Fraud Examiners (ACFE, 2012) estimated that 5% of any organization's revenue is lost to fraud each year. The U.S. Department of Commerce, Bureau of Economic Analysis (2013) reported that as of the fourth quarter of 2013, the gross domestic product (GDP) for the United States was $17.089 trillion. Estimates based on those measures indicate that U.S. companies may lose over $850 billion of revenue each year due to fraud. This analysis can be further extended to the global economy. According to the International Monetary Fund (IMF, 2013), the 2012 Gross World Product (GWP) was $71.7 trillion. Using the 5% revenue loss factor, estimates indicate that the world economy may lose over $3.5 trillion in revenue each year. Accordingly, this dissertation was intended to provide a better understanding of why and how frauds were committed.

This study addressed white-collar crime (WCC) and strain theory. Specifically, the relationship between strain and occupational fraud offenses, based on the theoretical framework of general strain theory (GST), was explored in this study. This research served the body of knowledge concerning criminology and accounting and is necessary because of the significant financial losses that result from fraud offenses and their impact on the world economy.

Content in this chapter has been organized to move from a general introduction of GST and occupational fraud to a more specific presentation of the research questions and hypotheses. This chapter has been organized to first indicate the background of the problem. The next area addresses the problem and purpose in alignment with the

research questions and hypotheses. The final section of the chapter addresses the theoretical framework and the nature of the study. Included in that discussion are explanations related to assumptions, delimitations, and limitations.

The background section presents a brief summary of current literature related to GST. This summary highlights existing knowledge and clearly identifies a gap in the literature pertaining to the relationship between GST and occupational fraud. The background section ends by indicating why this study is needed. The second section of this chapter concentrates on the research problem that is addressed by this study. This section of the chapter also summarizes evidence that shows that the research problem is relevant and worthy of study and presents a discussion of previous studies related to GST. The third section of this chapter addresses the purpose of this study and presents an introduction to the research design and the independent and dependent variables. In the fourth section, three specific research questions and their corresponding hypotheses are presented. The fifth section provides detailed information on GST. The major proposition of GST is described, and the connection between this theory and the research questions is explained. The sixth section provides a concise rationale for the research design. A summary related to research methodology, data, and analysis is included in this discussion. The chapter concludes with discussions related to definitions, assumptions, delimitations, limitations, and the significance of this study.

Background of the Problem

Within the field of criminology, crime causation is studied. Numerous theories have been developed in an effort to explain the causes of crimes. In general terms, crime

causation theories are based on one of three factors: (a) characteristics of individuals, (b) societal structure, or (c) individual and societal characteristics combined. Criminological theories based on the acts of individuals aim to identify characteristics and traits of offenders to explain their crimes. Individual characteristics may include both biological and psychological factors. Societal theories are based on the structure of societies as the basis of crime. Societal theories may include a focus on societal structure or social process. Other theories require the collective consideration of both individual and societal elements. Theories based on collective consideration include social control theories. GST, which forms the foundation for this study, emerged from this combined perspective.

Background of the Problem: Strain Theory

Strain theory dates back to the early 20th century with the work of Edwin Sutherland and Robert Merton (Merton, 1938; Sutherland, 1939). In the late 20th century, Robert Agnew (1992) modified strain theory and developed GST. This theory posits that strain originates from three categorical perspectives: (a) the failure to achieve positively valued goals, (b) the removal of positive stimuli, and (c) the introduction of negative stimuli, leading to negative emotional responses (Agnew, 2001). Negative emotional responses, in turn, may lead to delinquent behavior. Therefore, GST is a theory of crime causation that links strain to criminal, deviant, and delinquent acts.

Two common types of crime are traditional street crime and WCC. No universal agreement exists regarding the definition of WCC. Edwin Sutherland, an American criminologist, first created the concept of WCC in 1939. According to Sutherland

(1939), the distinction between traditional crime and WCC is delineated by the economic and social status traits of the offender, where WCC relates to acts perpetrated by individuals of high economic status. On the other hand, the Federal Bureau of Investigation tracks statistics related to WCC based on offense type rather than offender traits. Accordingly, any crime that is nonviolent and economic in nature may be considered a WCC.

Fraud is a subelement of WCC that often involves misrepresentation and deception, and occupational fraud is a subelement of fraud that involves the use of one's occupation to commit a fraud (ACFE, 2009). This dissertation related to occupational fraud offenses viewed through the theoretical lens of GST. Improved knowledge regarding the link between strain and fraud offenses was sought through this dissertation. Prior research grounded in GST has been conducted almost exclusively within the context of non-WCC offenses. The results of these studies show support for a positive and significant relationship between certain forms of strain and corresponding acts of non-WCC crime and delinquency. However, no studies appear to have demonstrated a clear, positive relationship between strain and occupational fraud offenses. Accordingly, the present study addresses this gap in the literature pertaining to GST and occupational fraud. Research on this topic is relevant and important given that occupational fraud offenses have a significant and costly impact on the global economy. The results from this study may contribute to improved fraud prevention strategies, which may lead to positive social change through a reduction in fraud losses.

Background of the Problem: Fraud Triangle

Cressey (1953) developed a concept known as the fraud triangle that suggests that for any crime to happen, three elements must be present: (a) an opportunity to commit the crime, (b) pressure felt by the perpetrator, and (c) the ability of the perpetrator to rationalize their actions. Prevention strategies are often aimed at the first element, reducing fraud opportunities. These efforts are most noticeable in the field of accounting as elements of internal control. Internal control procedures attempt to safeguard organizational assets by controlling the environment such that opportunities for wrongdoing are minimized. The results of this study provide a better understanding of fraudster behavior and thereby may contribute to enhanced control procedures.

Another element of the fraud triangle relates to pressure. Strain theory describes the interaction between strain pressure and deviant behavior. This study addressed global fraud losses by investigating how different types of strain impact various forms of occupational fraud. The results may help to inform future policies aimed at reducing fraud losses through strategies that minimize the impact of strain pressure on fraud. This study was conducted such that the results could be used to address global fraud losses. Evidence exists in the literature demonstrating a connection between economic health and the health of societies (Smith, 1999). Therefore, any effort to reduce negative impacts on the economy will residually improve societal conditions. For this reason, this study is directly connected to positive social change.

Background of the Problem: Gap in the Literature

WCC negatively impacts societies. Victims of WCC suffer economic losses that have a far-reaching impact on individuals, businesses, municipalities, and societies. Defining, understanding, and explaining the causes of WCC have been the focus of criminology researchers over the last several decades, and extensive literature exists related to crime causation theory. A growing amount of this literature is dedicated to GST, the majority of which has analyzed strain in relation to non-WCC. These studies have involved various contexts, such as juvenile crime, adult crime, work strain, and parental strain (Ganem, 2010; Hay & Meldrum, 2010; James, Bunch, & Clay-Warner, 2014; Lin, Cochran, & Mieczkowski, 2011; M. M. Moon & Jonson, 2012).

Various cross-sectional studies have been conducted within the framework of GST. For example, Lin et al. (2011) explored the relationship between direct and vicarious victimization strain and juvenile delinquency. The results of this study indicate that strain resultant from direct violent victimization, vicarious victimization, and combined (direct and vicarious) victimization have a positive and significant influence on deviant behavioral responses. More directly, the deviant behavior studied in this research was identified in the form of violent crimes, property crimes and drug use. Therefore, the researchers found evidence to suggest that strain felt from violent victimization may be related to maladaptive behavior in the form of violent crimes, property crimes, and drug use. Hay and Meldrum (2010) studied the relationship between strain and adolescent self-harm. The results of this study showed that there was a positive and significant relationship between bullying and self-harm. These results hold true for both traditional

bullying and cyber bullying. Furthermore, this study also indicated that the response of self-harm could somewhat be mediated by two forces. Those two forces include authoritative parental control and higher levels of self-control. Moon, M. and Jonson (2012) looked at the relationship between occupational strain felt by police officers and negative responses to those strains. The results of this study showed support for GST in that strain resulting from (a) the failure to achieve a valued goal, (b) the removal of a positive element, and (c) the introduction of a negative element all led to decreased commitment to the police agency. In other words, as strain increased, commitment to the agency decreased. Ganem (2010) studied various types of negative emotional responses resulting from strain and showed the extent to which different negative emotional responses may lead to deviant behavior. Results from this study showed evidence for deviant responses that cause harm to others when the negative emotion most associated with strain is anger. When frustration is the primary negative emotion, in response to strain, nonviolent deviant responses become the norm.

James et al. (2014) looked at the relationship between strain and school violence and viewed strain as the result of perceived unfair treatment. The results showed support for GST in that as strain from perceived unfair treatment at school increased so too did the rate of fighting and weapon carrying. Additionally, the results of this study indicated support for a reduction in delinquent response when stronger adult social control was in place. Robertson, Stein, and Schaefer-Rohleder (2010) investigated the relationship between strain resulting from Hurricane Katrina and deviant behavior among female adolescents. Slocum (2010) studied the relationship between strain and substance use

and offered insights relating to the collective power of strain over time. Hollist, Hughes, and Schaible (2009) looked at strain felt by children, based on relationships with their parents, and juvenile delinquency. Ngo and Paternoster (2013) explored the relationship between stalking strain, coping strategies, and deviant behavior. Jang, Sung, and Kim (2014) studied the relationship between offline and cyber bullying and deviant behavior by measuring the strain resulting from different types of bullying and relating it to deviant response patterns. The results of these studies demonstrate a correlation between strain and deviant acts. Strain in relation to unique demonstrations of deviant acts was analyzed. The specific forms of strain in each study differed as did the actual deviant acts that followed. Consistent amongst these studies were the steps taken to ensure that strain was measured in a way consistent within the theoretical framework of GST. The results of these studies showed support for GST and provided evidence that strain in some way may be an important factor to understand in conjunction with deviant acts.

While a significant number of studies have looked at GST in the context of non-WCC, only one study has been identified that looked at the relationship between GST and WCC. Langton and Piquero (2007) conducted a quantitative, nonexperimental study related to GST in the context of WCC. These researchers looked at strain scores and motivation (financial, personal, or business) for individuals who had committed various types of WCC. They reported a positive and significant relationship between strain and specific types of WCC, including false claims, securities exchange commission (SEC) violations, embezzlement, and credit frauds. The authors concluded that strain was a predictive factor in relation to certain types of WCC. This study produced results that

added to current GST literature. Furthermore, since most research regarding GST has been done in the context of traditional street crimes, this particular study informed as to how similar, or dissimilar, traditional street crimes were in relation to WCC offenses. This study was the first to specifically address the gap in the literature related to GST and WCC. There is a need for additional research to be completed within this same space. A dissertation focused on GST and occupational fraud addressed this gap in the literature.

Some studies were designed to analyze data about juveniles. Others focused their analysis on adults. Eitle (2010), Ganem (2010), James et al. (2014), and Lin et al. (2011) focused on work-strain whereas others have focused upon parental-strain. There has been no shortage of interest from researchers desiring to test GST within specialized contexts. One context rarely studied, in relation to GST, relates to WCC. More specifically, GST has been underresearched as it relates to occupational fraud. The relationship between GST in the context of occupational fraud, and the differences in strain relation among different types of occupational fraud, represent important gaps in the literature related to GST and WCC. This study addressed the gap in the literature in three primary ways. First, hypotheses were tested to determine whether empirical evidence supported GST in relation to WCC. Secondly, research results highlighted how WCC responses to strain might differ from non-WCC responses. As such, greater clarity about the similarities or dissimilarities between WCC and non-WCC could be attained. Lastly, greater understanding between categories of WCC could be garnered. In other words, the research not only highlighted categorical differences between WCC and non-WCC, but also differences between various WCCs themselves. A quantitative study of

occupational fraud in the context of GST addressed gaps in the literature and adds to the body of knowledge in the field of criminology. More specifically, the results of this dissertation indicated how characteristics of individuals, in conjunction with societal structure, could help to explain crime causation.

Problem Statement

The ACFE (2012) estimated that the world economy loses over $3.5 trillion annually due to fraud. At the national level, the U.S. Department of Commerce, Bureau of Economic Analysis (2013) reported that as of the fourth quarter of 2013, the GDP for the United States was $17.089 trillion. Estimates based on those measures suggest that U.S. companies may lose over $850 billion of revenue each year due to fraud. These fraud losses are measured as direct reductions from organizational revenue. As such, fraud losses fall directly to the bottom line and reduce organizational net income. These losses, which steal organizational net income, negatively impact the economy through reduced organizational profits and consequently weaker balance sheets. Fraud losses are a problem that leads to weaker organizations that offer fewer employment opportunities and grow at a slower pace. Municipalities suffer from fraud losses through reduced tax revenue, which is directly connected to the erosion of organizational profits. Fraud losses, impacting economic health in a negative way, lead to additional hardships for individuals, families, municipalities, and organizations. Occupational fraud is a specific subtype of fraud that requires the perpetrator to use their employment position to conduct a fraud. Scholars and practitioners have developed research agendas and policy decisions aimed at reducing occupational fraud losses.

The problem of occupational fraud and its negative impact on the economy is important to the fields of criminology and accounting. From a general perspective occupational fraud involves wrongful acts that ultimately result in victims losing some, or all, access to financial resources that rightfully belong to them. These frauds can lead to financial hardship for individuals and business entities alike. Additionally, these frauds may lead to the general distrust of societies and people. Within the field of accounting, financial statement frauds have been discovered in both public and private companies. Financial statement frauds mislead creditors and investors and result in financial decisions that are based upon misleading and deceptive information. Asset misappropriation and corruption frauds are found not only within the accounting field but also within all functional areas of organizations. Economic crimes are of interest within the field of accounting. For example, accountants, through the design and implementation of internal controls, safeguard organizational assets. The misappropriation of assets is a type of occupational fraud.

Criminological research addresses the causes of crime with the aim to improve crime prevention and detection. Therefore, research conducted in the context of strain theory and occupational fraud is important to both the criminology and accounting disciplines. The ACFE (2012) estimated that occupational fraud losses may be as high 5% of an organization's revenue per year. On a global scale, this estimate represents a multitrillion dollar issue; thus, additional research is merited.

Occupational fraud is pervasive and all types of organizations are susceptible. GST relates strain to crime, and occupational fraud is a type of crime. Accordingly, GST

could be an explanatory factor for fraud crimes, including occupational fraud. Further understanding of the role of strain and its connection to occupational fraud is therefore an appropriate research objective. Evidence in the literature supports the need for research focused on occupational fraud (Langton & Piquero, 2007). This dissertation was set in the context of occupational fraud and produced new knowledge that would aids in developing fraud prevention and detection strategies.

Purpose of the Study

The purpose of this quantitative, cross-sectional study using secondary data was to examine if, and to what extent, there was a relationship between strain and occupational fraud in the context of GST. Specifically, the mean strain scores related to (a) asset misappropriation offenses, (b) corruption offenses, and (c) fraudulent financial statement offenses were compared. Additionally, if there is and to what extent there is a relationship between strain and (a) asset misappropriation, (b) corruption, and (c) fraudulent financial statements was analyzed in this study. Strain theory has been in the criminology literature for over 50 years and has undergone numerous revisions; however, GST has been difficult to test (Agnew, 2001). Past researchers (Eitle, 2010; Ganem, 2010; James et al., 2014; Langton & Piquero, 2007; Lin et al., 2011) have found creative ways to quantify strain factors to explore relationships between strain and various criminal offenses. This study was guided by the foundational work of Agnew (2012), who described the types of strains that are most associated with delinquent response patterns. Based on this information, specific strains were measured to generate values for strain scores related to occupational fraud offenses; these strains served as the

independent variable. The dependent variables in this study were the three types of occupational fraud offenses described previously. The research purpose was formed to address the problem of occupational fraud and its negative impact on the U.S. and world economies.

Research Questions and Hypotheses

The purpose of this study was to analyze the relationship between strain and occupational fraud within the theoretical framework of GST. GST, at its most basic level, suggests that strain pressures, when applied to individuals, lead to delinquent behavior (Agnew, 2012). In this study, strain scores, which serve as an independent variable, were determined based upon survey responses related to (a) education level; (b) past fraud behavior; (c) warning signs related to addiction problems, divorces, and past legal problems, and (d) past employment problems. GST also posits that strain pressures lead to negative emotional reactions (Agnew, 2012). Past researchers (Langton & Piquero, 2007) have used crime motivation as a proxy for the negative emotionality element of GST. This study used motivation as a proxy for the negative emotional response element of GST. Specifically, motivation as being (a) personal, (b) financial, or (c) work-related was classified. These motivational elements also served as independent variables within this study.

Although past research has addressed GST, scholars have not specifically studied GST in the context of occupational fraud. To analyze the relationship between strain and occupational fraud offenses within the context of GST, it is important to understand if there is a difference, as measured in mean strain scores, between the three forms of

occupational fraud. Additionally, GST posits that there is a correlation between strain, negative emotional responses, and delinquent behavior (Agnew, 2012). To address this theory independent variables related to strain scores as well as fraud motivation were analyzed in relation to the three forms of occupational fraud. Accordingly, three research questions were developed for this study.

Research Question 1

The first research question asked the following: To what extent, if any, is there a difference in strain scores for asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses? To address this research question, the following hypothesis was tested.

$H1_0$: The mean strain score for asset misappropriation offenses is equal to the mean strain score for corruption offenses, which is also equal to the mean strain score for fraudulent financial statement offenses.

$H1_A$: The mean strain score for asset misappropriation offenses is not equal to the mean strain score for corruption offenses, which is also not equal to the mean strain score for fraudulent financial statement offenses.

Research Question 2

The second research question asked the following: Is there a significant relationship between strain scores and asset misappropriation fraud offenses, corruption fraud offenses, and fraudulent financial statement offenses? To address this research question, three hypotheses were tested.

$H2_0$: R(x,y) = 0, where x = strain score and y = number of asset misappropriation crimes.

$H2_A$: R(x,y) ≠ 0, where x = strain score and y = number of asset misappropriation crimes.

$H3_0$: R(x,y) = 0, where x = strain score and y = number of corruption crimes.

$H3_A$: R(x,y) ≠ 0, where x = strain score and y = number of corruption crimes.

$H4_0$: R(x,y) = 0, where x = strain score and y = number of fraudulent financial statement crimes.

$H4_A$: R(x,y) ≠ 0, where x = strain score and y = number of fraudulent financial statement crimes.

Research Question 3

The third research question asked the following: Is there a statistically significant correlation between fraud motivation and asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses? To address this research question, nine hypotheses were tested.

$H\mathbf{5_0}$: The correlation between personal motivation and asset misappropriation offenses is not statistically significant.

$H\mathbf{5_A}$: The correlation between personal motivation and asset misappropriation offenses is statistically significant.

$H6_0$: The correlation between personal motivation and corruption offenses is not statistically significant.

$H6_A$: The correlation between personal motivation and corruption offenses is statistically significant.

$H7_0$: The correlation between personal motivation and fraudulent financial statement offenses is not statistically significant.

$H7_A$: The correlation between personal motivation and fraudulent financial statement offenses is statistically significant.

$H8_0$: The correlation between financial motivation and asset misappropriation offenses is not statistically significant.

$H8_A$: The correlation between financial motivation and asset misappropriation offenses is statistically significant.

$H9_0$: The correlation between financial motivation and corruption offenses is not statistically significant.

$H9_A$: The correlation between financial motivation and corruption offenses is statistically significant.

$H10_0$: The correlation between financial motivation and fraudulent financial statement offenses is not statistically significant.

$H10_A$: The correlation between financial motivation and fraudulent financial statement offenses is statistically significant.

$H11_0$: The correlation between work-related motivation and asset misappropriation offenses is not statistically significant.

$H11_A$: The correlation between work-related motivation and asset misappropriation offenses is statistically significant.

$H12_0$: The correlation between work-related motivation and corruption offenses is not statistically significant.

$H12_A$: The correlation between work-related motivation and corruption offenses is statistically significant.

$H13_0$: The correlation between work-related motivation and fraudulent financial statement offenses is not statistically significant.

$H13_A$: The correlation between work-related motivation and fraudulent financial statement offenses is statistically significant.

Theoretical Framework

The theoretical framework for this study is based on GST, a theory of crime causation that focuses on a combination of individual characteristics and societal structure. The GST was developed by Agnew (2012) and posits that individuals feel strain as a consequence of their relationships with others. Strain, when sufficiently high in magnitude and perceived as unjust, can trigger a negative emotional response, and when coping strategies for dealing with negative emotionality are maladaptive, crime may result (Agnew, 1992). Accordingly, GST is bounded by an understanding of strain in the context of interpersonal relationships and maladaptive coping strategies. Directly stated, GST suggests that certain forms of strain trigger delinquent responses. A more detailed discussion of GST is presented in Chapter 2.

Previous researchers (Ganem, 2010; Hay & Meldrum, 2010) have isolated variables related to strain, negative emotionality, and delinquent response in order to empirically test GST. The results of these studies suggest that independent variables

related to strain might trigger negative emotional responses and lead to maladaptive and delinquent actions (Hollist et al., 2009; Langton & Piquero, 2007). Some studies have shown support for GST (Eitle, 2010; Langton & Piquero, 2007), whereas other researchers could not find empirical support for the theory (B. Moon & Morash, 2013; Zavala & Spohn, 2013). A detailed review of these findings is presented in Chapter 2.

The three research questions in this study addressed the relationship between strain scores and occupational fraud offenses within the context of GST. Strain scores and fraud motivational factors, which serve as the independent variables, are based on GST and include characteristics of strain pressure, as posited by Agnew (2001). Agnew (2001) suggested that strain is a causal factor impacting all forms of crime. Accordingly, a study analyzing the relationship between strain and occupational fraud is appropriate in the context of this research domain.

Nature of the Study

This quantitative, cross-sectional study utilizing secondary data was designed to analyze the relationship between strain and occupational fraud within the context of GST. Three research questions were developed to address the purpose of this study. Research Questions 1 and 2 required data that indicated the presence of strainful conditions, such that a strain score for each occupational fraud case could be determined. Research Question 3 required data related to fraud motivation such that each occupational fraud case could be coded to one of three motivation categories. A quantitative method was appropriate for this study for two reasons. First, this study was conducted to determine if the tenets of GST would hold true within the context of occupational fraud crimes. In

order to make that determination strain had to be measured and then analyzed in relation to specific occupational fraud responses. Secondly, prior GST studies have set a precedence of using a quantitative method to study GST in relation to deviant behavior. The three research questions in this study required measurement and analysis for the independent variables of strain and motivation in relation to the dependent variables of (a) asset misappropriation, (b) corruption, and (c) fraudulent financial statements. A quantitative method of study was most appropriate to address the research questions and associated hypotheses because a statistical correlation analysis was needed to empirically determine significance related to strain, fraud motivation and occupational fraud offenses.

Babbie (2013) suggested that the purpose of conducting research is to explore, describe, and explain. Qualitative research efforts have a natural association to exploration. Qualitative research seeks to understand and make meaning out of situations, events, cultures, or other areas of phenomenon (Creswell, 2007). Whereas quantitative research seeks to test relationships of variables and then relate understanding about those variables back to a theory, qualitative research begins with a blank canvas, no described variables, no espoused theory, and no hypothesis. This study was designed to analyze known variables within the context of an established theory. For this reason a qualitative research method would not be appropriate for this study. Mixed-method research efforts use elements of both quantitative and qualitative studies (Creswell, 2009). Some phenomena give way to paths that are both quantitative and qualitative. In such cases, a researcher may employ a mixed-method design (Creswell, 2009). This study, however, was designed to analyze variables within the context of a grounded

theory. The most appropriate research method for this study was quantitative. For this reason, neither a qualitative method nor a mixed-methods approach would properly address the research questions as stated.

Quantitative studies are classified as either experiments, quasi-experiments, or nonexperiments (Trochim, 2000). Each of these different research designs serves a unique purpose. A non-experimental method of research, classified as cross-sectional, is one that does not require the same rigor related to manipulation and control as found in experiments (Frankfort-Nachmias & Nachmias, 2008). Cross-sectional studies allow the researcher to use data without employing manipulation on the independent variable and without having the same tight controls over influencing conditions, as is mandated with true experiments. Social science research projects are often conducted in an environment that does not allow for manipulation and variable control (Frankfort-Nachmias & Nachmias, 2008). This cross-sectional study was designed to use secondary data to address three research questions. The research questions, and corresponding hypotheses, were analyzed to determine correlative characteristics amongst variables that are not manipulated or controlled. For this reason a cross-sectional design was appropriate to address the research questions.

In social science research it is quite often impossible to employ a true experiment method (Trochim, 2000). True experiments not only control for nearly all influences on the studied variables, they also employ a randomness in data. This randomness allows for the greatest likelihood of being able to generalize results. Experimental designs have elements that involve comparison, manipulation, control, and generalizability (Frankfort-

Nachmias & Nachmias, 2008). With a true experiment a comparison between variables must be studied. This comparison helps to determine the change in the dependent variable based upon changes related to the independent variable (Frankfort-Nachmias & Nachmias, 2008). This study, which relied upon on secondary to address three research questions, did not allow for random assignment of the data. The design of this study does not allow for control and manipulation mechanisms robust enough to qualify as experimental. For these reasons an experimental design was not appropriate for this study. Quasi-experimental methods of research share many of the same considerations as experiments. However, there is one difference. In true experiments, there is a true random assignment of the data (Trochim, 2000). In quasi-experiments, random assignment is not the case. Rather, in quasi-experiments there may be a random selection, or some other grouping and testing method, but it is not a true random assignment (Trochim, 2000). This study did not use random selection. For this reason a quasi-experimental design was not appropriate for this study.

Definitions

Asset misappropriation: The taking or otherwise wrongful use of an organization's assets; includes skimming, larceny, and wrongful disbursements (ACFE, 2012).

Corruption: Fraud involving more than one offender; includes bribery, illegal gratuities, and economic extortion (ACFE, 2012).

Financial motivation: Fraud motivation resulting from economic strain (Langton & Piquero, 2007).

Fraudulent financial statements: Any purposeful falsification of financial or nonfinancial reports (ACFE, 2012).

Personal motivation: Fraud motivation resulting from personal strain (Langton & Piquero, 2007).

Strain score: The sum of strain scores related to educational level, prior convictions, past employment history, and strain warning signs (Langton & Piquero, 2007).

Work-related motivation: Fraud motivation resulting from stress created by the occupational environment (Langton & Piquero, 2007).

Assumptions of the Study

In this study, occupational fraud was assumed to cause economic losses that negatively impact individuals, families, municipalities, and all type of organizations. Past research has provided estimated values of fraud losses (ACFE, 2012). Fraud losses are assumed to harm the economy and, therefore, to harm societies. This study addressed the problem of fraud losses in an effort to create positive social change through the creation of new knowledge that can be used to develop fraud prevention and detection strategies.

Another assumption of this study was that characteristics of strain pressure identified from the data are consistent with strain attributes posited by GST. To this end, the study was guided by Agnew (2012), who identified the sources of strain that are most frequently associated with delinquent response patterns. Survey responses were linked to specific types of strain to determine strain scores, and the assumption was that this

approach would consistently classify strain sources in accordance with GST. Prior studies, detailed in Chapter 2, had to address this same issue, and similar approaches to strain valuation in the context of GST have been described in the literature. The present study conformed to the methods used in prior studies.

Scope of the Study and Delimitations of the Study

The research problem being addressed was that of occupational fraud losses. GST suggests that strain is connected to criminal behavior and deviant acts; the experience of strain is central to this theory. This study explored the relationship between strain and occupational fraud offenses.

The ACFE conducts a survey every 2 years in an effort to collect data related to occupational fraud offenses. Of the data collected, some responses provide suggestions of strain. For example, lower educational levels, prior criminal convictions, and a troubled past employment history may lead to difficulties in life that make higher levels of strain more likely (Agnew, 1992). For each offense, data representing educational history, conviction history, and employment history were available. Therefore, this quantitative study contained information on strain indicators and occupational fraud type from ACFE survey data and regression analysis was conducted to examine the relationships between variables. Associating strain indicators with occupational fraud addressed the issue of internal validity.

Using the ACFE survey data allowed for each fraud offense to be consistently assigned to a specific occupational fraud type. However, measures of strain are more subjective in nature. In the past, researchers have measured strain indicators

dichotomously. This approach, along with logistic regression analysis, allowed for the testing of hypotheses related to strain. However, accounting for all factors that might lead to strain is not possible. Furthermore, a subjective measurement was made relating strain indicators to levels of strain, but the impact of non-strain variables on occupational fraud acts was not accounted for. Because of this condition, the results of the study, although useful, are not generalizable. The generalizability of the results of this study was further limited because of the nonrandom sampling of data. Although the data represent global occupational fraud cases across multiple industries, the results are not generalizable. Nonetheless, the findings do add to the existing body of knowledge related to GST.

Limitations of the Study

This study involves a number of limitations. First, the data were supplied by the ACFE and are based on their understanding of fraud offenders, rather than being obtained directly from fraud offenders. The strain indicator data related to educational level, work history, family stressors, and past criminal behavior. Accordingly, the possibility of misunderstanding data related to each strain indicator existed. This limitation was addressed by using a high number of fraud cases (over 2,500).

Another limitation of this study related to content validity. The GST offers a list of strain conditions that are most frequently associated with delinquent response patterns. Not all GST strain conditions are present in the set of data that was used in this study. Therefore, calculated strain scores may not accurately represent strain as described by GST. Agnew (1985) recognized that this limitation would affect researchers attempting

to test GST and that it may present a risk to content validity. However, based on previous GST research, this limitation was addressed through the evaluation of various strain indicators. In other words, prior GST research showed that it was acceptable to measure strain based on many different types of strain. The present study measured strain based on several criteria associated with GST; thus, the approach was consistent with the norms of criminological research.

Significance of the Study

The design of this study was based on previous criminological research addressing strain theory. However, the results of this study make a unique contribution to the literature related to GST and provide a foundation for future research that would help to better understand the relationship between strain and delinquent behavior. Enhanced understanding in this area may lead to new and improved fraud prevention and fraud detection strategies. New strategies may help to reduce fraud losses. A reduction in fraud losses may help businesses achieve greater financial success, increase employment opportunities, and increase revenue for the respective governments. These changes may lead directly to positive social impact for societies at large.

This study was the first to analyze the relationship between strain and occupational fraud offenses in the context of GST, and it addressed an under-researched area of criminology, specifically WCC. The topic of this study related to the fields of criminology and accounting, and the results provide needed insights into these two primary areas. First, the results addressed the proposition that GST applies to all types of criminal behavior. Second, the results added to the body of knowledge related to

occupational fraud and, specifically, to GST. Knowledge gained in either of these areas addresses the issue of fraud prevention and fraud detection. Enhanced knowledge and methods pertaining to fraud prevention and fraud detection have the potential of shaping policies and actions that might result in a reduction of fraud losses.

The ACFE (2012) estimated that the world economy loses over $3.5 trillion annually due to fraud. These losses negatively impact the economy, leading to additional hardships for individuals, families, municipalities, and organizations. The results of this study, specifically related to Research Question 1, provide insights as to the similarities or dissimilarities between the three forms of occupational fraud and the role of strain upon the perpetrators. In the field of accounting controls are put in place to properly safeguard organizational assets. Occupational frauds directly threaten those assets and lead to financial losses. As more is understood about the specific nature of asset misappropriation offenses, corruption offenses, and fraudulent financial statements in relationship to one another, differentiated strategies could be identified and executed that would lead to a reduced risk of each type of fraud. Minimizing occupational fraud risk could translate directly in reduced losses for businesses and organizations of all types. By definition a reduction in losses could serve as betterment to society at large. Directly stated, the results of this study could help to inform control policies within the field of accounting that reduce the risk of occupational fraud losses.

From within the domain of social science research the results of this study help to better understand how occupational fraud offenses relate to other forms of WCC as it pertains to the impact of strain on the individual perpetrator. Langton and Piquero (2007)

studied the relationship of strain upon a specific set of non-occupational WCCs. Therefore, the results this study, when analyzed in relation to the Langton and Piquero study, help to highlight the similarities and dissimilarities between non-occupational fraud offenses and occupational fraud offenses. This knowledge helps raise new questions that serve as the driving force behind additional research related to WCC. Again, the value of research relates back to the desire to influence policy and practice in way that helps to reduces fraud losses. In that sense, this research, like other research within this field of study, can be used to help reduce financial losses within society so that hardships to individuals, businesses, and municipalities may be minimized. The hope is that fewer people will need to realize the negative impacts of financial losses due to occupational frauds. Based on the stated focus, this research effort was specifically connected to creating positive social change.

Summary

Chapter 1 introduced GST and the need to conduct research related to GST and occupational fraud. This need was demonstrated through an introduction to the gap in the literature that exists related to the study of occupational fraud within the theoretical framework of GST and also through the presentation of evidence suggesting that fraud losses may impact the world economy by as much as $3.5 trillion annually.

GST has been rigorously tested in the context of non-WCC offenses. A gap in the GST literature was identified as it pertains to occupational fraud. Current literature, and the gap in literature pertaining to GST and occupational fraud, are addressed in Chapter 2. Chapter 2 provides a comprehensive review of current literature related to GST and

occupational fraud, establishes the relevance of the research problem, and provides a thorough discussion related to the origins and propositions of GST. Chapter 3 presents the research methodology. Chapter 4 presents the results of the study. Chapter 5 provides a review of how the results can be used by practitioners and scholar.

Chapter 2: Literature Review

A strong economy is vital to the overall health of society. Conditions that weaken an economy have a residual negative impact on society. Fraudulent acts weaken an economy through the displacement and wrongful use of money and other important assets. According to the ACFE (2012), fraud may cost the world economy over $3.5 trillion per year. These losses are problematic to the economy and to society in general.

Occupational fraud is a subtype of fraud that involves the use of one's occupation to commit delinquent acts. Occupational fraud can be classified into one of three categories, including (a) asset misappropriation, (b) corruption, and (c) fraudulent financial statements (ACFE, 2012). The purpose of this quantitative study was to analyze occupational fraud from the perspective of GST. GST posits that when individuals feel strain resulting from mistreatment or other unjustified acts they are more likely to engage in criminal acts. Thus, GST provides a theoretical foundation that links strain to deviant behavior. Occupational fraud offenses in relation to strain were analyzed in this study. The results provide insight regarding the relationship between strain and asset misappropriation, corruption, and financial statement frauds.

Two important sources, including (a) research findings that measure and confirm the reality of fraud losses and (b) current literature centered on GST, demonstrate the relevance of the stated research problem. Since 1996, the ACFE has been conducting a biennial survey related to occupational fraud and publishing the findings in the *Report to the Nations on Occupational Fraud and Abuse*. In the 2010 and 2012 reports, estimates revealed that companies lose 5% of their annual revenue to occupational fraud (ACFE,

2012). In the 2008 report, which only included data pertaining to U.S. companies, annual losses due to occupational fraud were estimated at 7% of revenue. Those losses, when measured in relation to GWP, amount to trillions of dollars of negative impact to the world economy each year. The magnitude of losses reported by the ACFE is consistent with occupational fraud data published in the *Internal Auditor* (Hunt, 2014).

Losses resulting from occupational fraud are large and have a global reach. Therefore, research that seeks to advance the understanding of strain theory and its relationship to occupational fraud losses is relevant. Since Agnew developed GST in 1985, many researchers have conducted studies to test its merit, and evidence in the literature supports the applicability of GST in a variety of contexts (Eitle, 2010; Ganem, 2010; James et al., 2014; Langton & Piquero, 2007; Lin et al., 2011). The magnitude of fraud losses globally, as well as recent interest in GST, demonstrates the relevance of a study that examines GST in the context of occupational fraud.

This chapter contains an analysis of current literature related to GST. The major sections of this chapter include the literature search strategy, a thorough discussion of occupational fraud, and the theoretical framework of GST.

Literature Search Strategy

GST describes the relationship between strain and the perpetration of deviant, delinquent, or criminal acts. Occupational fraud denotes wrongful acts conducted through the use of one's occupation. GST in the context of occupational fraud was analyzed in this study. This effort was based upon a thorough understanding of current literature pertaining to both GST and occupational fraud. A variety of library databases,

search engines, and search terms were used to retrieve current literature related to GST and occupational fraud.

Library databases from Walden University (WU) and Davenport University (DU) were used to retrieve current literature related to GST and occupational fraud. WU subscribes to 107 databases and over 64,000 full text journals. Additionally, WU provides access to over 3 million dissertations. DU subscribes to 44 databases. Searches were conducted using key search terms based on word combinations, including *general strain theory*, *GST*, *strain theory*, *fraud*, *occupational fraud*, *white-collar crime*, *asset misappropriation*, *corruption*, *fraudulent financial statements*, and *economic crime*. Search terms also included the names of key researchers in the field, such as *Merton*, *Durkheim*, *Agnew*, *Piquero*, *Langton*, *Sutherland*, and *Cressey*.

Strain theory dates back to the early 20th century (Merton, 1938). Accordingly, literature searches related to the work of Durkheim (Durkheim, 1951), Merton (Merton, 1938), and Sutherland (Sutherland, 1939) included publications dating back to that time period. For publications related to GST, searches covered the period from 1985—when Agnew published his first article on GST (Agnew, 1985)—to the present. As it pertains to current literature focused on testing GST, the scope of the literature review, in terms of years searched, covered the period from 2009 to 2015.

Collectively the literature search strategy used in this study relied upon both classical and contemporary points of emphasis. The theoretical framework that this study has been built upon is rooted in strain theory. A literature search strategy dedicated to the evolution and development of strain theory requires a focus upon classical works. A

current literature search strategy was used to study research design norms within the context of GST. Additionally, a current literature search strategy was used to understand the foundational knowledge base pertaining to causes of deviant behavior in relation to GST.

Theoretical Foundation: General Strain Theory

Many theories of crime causation have been put forward, and each attempts to define and clarify elements that explain why crimes are committed. Two primary focal areas of explanation have emerged from criminological theory. Those traits include (a) traits related to individual perpetrators and (b) elements of society and social structure. GST addresses crime causation by drawing on both individual and societal perspectives. This theory posits that crime is an individual response to strain, and the source of strain that leads to criminal behavior is rooted in social interaction. Therefore, GST provides a perspective of crime causation that is both individual and societal. This study was grounded in the theoretical framework of GST.

GST was developed by Robert Agnew (1985) as an extension of strain theory, which was developed by Robert Merton (Merton, 1938). The chief idea of strain theory, and ultimately GST, is that strain is pressure applied to individuals that may result in delinquent behavior. Arguably, every individual feels strain at various times throughout the course of a lifetime. However, in the context of crime causation, strain pressure triggers response patterns in some people that lead to delinquent behavior.

Strain theory arose from attempts to understand the causes of strain. Specifically, strain theory was developed by Merton (1938) in consideration of Durkheim's theory of

anomie, which surfaced during the industrial revolution. At that time, technological and industrial advancements were changing the way individuals in a society worked with and related to one another. Industrial work created a disjointing of interconnectedness among members of society. This disjointing decreased restraints on individuals, causing them to feel less connected to, and less responsible toward, one another (Durkheim, 1951). Barriers that previously prevented delinquent behavior became less robust. Anomie theory posited that a decrease in societal connectedness resulted in increased strain felt by individuals and increased delinquent behavior (Durkheim, Spaulding, & Simpson, 2010). Merton (1938) expanded on these ideas with strain theory, suggesting that strain was the result of an individual's inability to meet certain culturally determined goals.

Original strain theory focused on strain as a result of failing to achieve a goal. Agnew's (2012) GST added to this focus and suggested that strain was a function of (a) the failure to achieve a goal, (b) the removal of a positive stimuli, and (c) the presence of a negative stimuli. According to Agnew, failure to achieve a goal "is better measured in terms of the disjunction between actual achievements and expected goals" (p. 35), whereas the removal of positive stimuli and the presence of negative stimuli relate to painful situations that create strain for individuals. Thus, GST considers both individual actions and societal structure as key elements of delinquent response patterns.

Agnew was careful to denote that not all strains lead to deviant responses. GST specifies that strains that are high in magnitude and viewed as unjust are more likely to lead to deviant responses (Agnew, 2012). Strains that are more likely to trigger criminal coping responses may include parental rejection, excessive discipline, bad school

experiences, work-related stressors, unsafe living conditions, and unhealthy financial circumstances. Additionally, GST posits that strains from these sources lead to negative emotions that may, in turn, lead to delinquent behavior (Agnew, 2012).

While several studies have examined GST in the context of non-WCC, few studies have looked at its role in WCC. Langton and Piquero (2007) grounded their criminological study in GST and specifically analyzed the relationship between strain and WCC offenses. Their cross-sectional study utilized existing data. A strain score was calculated for each offender within their sample. The strain score served as an independent variable in their study. The researchers also determined three motivations for the crimes in their sample. Each offense was assigned to one of the three motivations. The motivations served as a proxy representing negative emotionality. Lastly, Langton and Piquero identified eight different types of WCC offenses from within their sample. Utilizing logistical regression analysis they studied relationships between strain and motivation as well as between strain and offending. The results showed some support for GST in that there were a few instances in which positive and significant correlations were statistically observed. The correlation between strain and financial motives was positive and significant. Additionally, the correlation between strain and false claims was positive and significant.

The Langton and Piquero (2007) study serves as a good foundational starting point for a discussion related to WCC research within the context of GST. Their study was published in the *Journal of Criminal Justice*. Langton and Piquero have numerous published articles within the discipline of criminology. Furthermore, their study

specifically addressed GST and WCC. The researchers used a cross-sectional design. They constructed their independent variable by using a dichotomous labeling of six strain factors. Those factors included (a) number of legal marriages, (b) condition of neighborhood of residence, (c) academic performance, (d) value of assets, (e) value of liabilities, and (f) employment history over last 5 years. Each of these strain indicators was coded with either a zero or a one. In all cases a one was used to denote a more strainful condition. Therefore, the higher the strain score, the higher the perceived strain. Negative emotionality was measured in the form of crime motivation. Three motivations were identified. They included (a) financial, (b) personal, and (c) business. These variables were dichotomous using a zero or a one. An observation was coded with a one when the primary motivation was thought be related to that specific offense. As such, each observation was only coded with one of the three motivation types. Lastly, eight different offending types were analyzed. Again, each of these variables was dichotomously coded. Like motivation, each observation was coded with a one to represent the offense type. The eight offenses included (a) antitrust violations, (b) bribery, (c) false claims, (d) embezzlement, (e) mail and wire fraud, (f) SEC violations, (g) tax violations, and (h) lending and credit fraud. The Langton and Piquero study was neither a true experiment nor a quasi-experiment. Their analysis used data from a prior survey. The researchers were able to clearly organize the independent and response variables. They completed statistical analysis that allowed for descriptive understanding of the relationship between strain, negative emotionality and offending.

Langton and Piquero (2007) used a quantitative, nonexperimental design and existing data on offenders who had committed various WCCs. The results showed a positive and significant relationship between strain and false claims, SEC violations, embezzlement, and credit fraud. In addition, each offense type responded differently to strain. The findings of this study suggest that GST may have some predictive ability in relation to various WCCs.

Langton and Piquero (2007) provided a better understanding of GST as a crime causation theory. By comparing their findings to previous studies that looked at GST in the context of non-WCC, similarities and differences between the two types of crime can be evaluated. Furthermore, the findings of Langton and Piquero offer questions for future research. For example, what explains the differences between those WCCs that a showed positive and significant correlation with strain and those that did not? To what is extent is motivation a factor in how strain is perceived? What role do offender characteristics play in the response to strain?

Previous studies within the domain of criminology have shown that GST can help explain delinquent behavior (Hay & Meldrum, 2010; Lin et al., 2011). Such studies have evaluated GST by measuring strain and analyzing its relationship to delinquent responses. This study was designed in a similar fashion; accordingly, this research adheres to the theoretical and design norms of criminology and GST analysis. In this study, strain was measured in accordance with GST, and its relationship to delinquency in the form of occupational fraud was analyzed. The results of this study add to the body of knowledge pertaining to GST, especially as it relates to WCC. As more is understood about the

relationship between strain, negative emotional reactions and their linkage to deviant behavior, enhanced fraud prevention and detection strategies might be developed. These enhancements might help to reduce fraud losses and reduce some amount of hardship on individuals, families, organizations, and municipalities.

Crime Causation: Fraud Triangle

Donald Cressey (1953) developed the idea that for any fraud to occur three elements must be present; opportunity, pressure and rationalization. A person must be feeling some form of real or perceived pressure. In response to this pressure the person will take advantage of opportunities to commit fraud. The person, who feels pressure, then will rationalize their behavior. The consideration of each of these steps outlines an understanding of the fraud triangle. The fraud triangle is widely accepted as a way to approach the understanding of fraud acts. The Statement on Auditing Standards 99 (SAS 99) bases auditor responsibility to look for fraud upon the fraud triangle. For these reasons the fraud triangle has been referenced in current literature related to fraud crimes. Some researchers have begun their research in an effort to determine if the fraud triangle would be a good basis from which to view fraud crimes. Lou and Wang (2011) carefully studied each of the elements of the fraud triangle. They concluded that all three points of the triangle were appropriate and valid for studying fraud (Lou & Wang, 2011). They determined that pressure could be the firm as a whole or on the people within the firm (Lou & Wang, 2011). They also concluded that as an organization had more complex transactions they would have more opportunity to commit fraud (Lou & Wang, 2011). Lastly, Lou and Wang found that lower management integrity, along with weakened

relationships with auditors, served as a necessary platform for rationalization. Hogan, Rezae, Riley and Velury (2008) found evidence and support of the use of the fraud triangle as related to SAS 99. Not only did they find support of using the fraud triangle in relation to SAS 99, but they further discovered that fraud checklists do not necessarily lead to better audit plans (Hogan, et al., 2008).

Not all researchers believe that the fraud triangle is the best basis by which to view financial statement fraud. Donegan and Ganon (2008) discovered that financial statement fraud would best be studied through the lens of criminology. More specifically they posit that the study of fraud can be explained through the understanding of strain theory, differential association, and coercion theory (Donegan & Ganon, 2008). Strain theory suggests that pressures, or strains, upon individuals will in turn drive them to consider illegal choices (Donegan & Ganon, 2008). Furthermore, differential association suggests that learning how to conduct frauds comes through close association with others (Donegan & Ganon, 2008). Coercion theory suggests that certain people can be coerced into committing fraudulent acts (Donegan & Ganon, 2008). Put all together, Donegan and Ganon suggested that strain theory, differential association, and coercion theory are better than the fraud triangle for understanding fraud causes and actions.

Previous research (Donegan & Ganon, 2008; Lou & Wang, 2011) have specifically set aim to understanding whether or not the fraud triangle is the correct lens by which to view fraud crimes. These studies, through their inclusion of the fraud triangle in their work, or through overt validation of the fraud triangle, found support for it. For these reasons it makes sense to continue to value the fraud triangle as one of the lenses by

which the phenomenon of fraud is viewed. The connection between the fraud triangle and GST is clear. One of the three points of the fraud triangle pertains to financial pressure. Financial pressure directly correlates to strain as posited through GST. Therefore, the results of this study provide insights relative to strain that help to address the pressure element of the fraud triangle. The results of this work highlight methods for reducing certain forms of strain such that a reduction in fraud losses might occur. In summary, there is a natural connection between ideas related to the fraud triangle, and research centered on occupational fraud, within the framework of GST.

Obedience Pressure and Coercion

Obedience theory suggests that people will do things they would not normally do, including committing fraud, when a person of authority requires them to do so (Baird & Zelin II, 2009). Ideas related to obedience theory can be linked directly to corruption-based frauds. Corruption frauds utilize the support of two or more individuals in a way that allows for fraud offenses to be committed. Obedience theory addresses the interplay between the individuals involved in a corruption offense. Baird and Zelin (2009) also found a linkage between obedience theory and rationalization. Rationalization is one of the three points found within the fraud triangle. Therefore, through the study of fraud crimes a link can be established between GST, the fraud triangle, and obedience theory. Obedience theory suggests that people will rationalize their fraudulent behavior by seeing their actions as being obedient to their superiors (Baird & Zelin II, 2009). This idea was specifically evident in cases related to financial statement fraud (Baird & Zelin II, 2009). In a similar fashion Donegan and Ganon (2008) found evidence to support coercion

theory. Coercion theory in its own way deals with individuals within a firm being enticed to comply with fraudulent practices (Donegan & Ganon, 2008). More specifically they believed that as a firm experiences pressure, a key individual from within the firm will craft a fraudulent scheme. That key person will then need others to help carry out the scheme. They entice this behavior through coercion (Donegan & Ganon, 2008). Whether the method is through obedience theory or coercion theory, evidence suggests that many occupational fraud schemes require the work of multiple people. Some form of cooperation must exist to get multiple people to rationalize their behavior and go along with the fraud. This cooperation is important to note both in regards to prevention and detection. These data can be used to better shape control procedures so that cooperation at this level is harder to attain.

Tillman (2009) studied the impact of reputational penalty theory. Specifically Tillman researched the idea that people and firms are so unwilling to have their reputations damaged that they would informally control the business environment and ensure that fraud was not happening. Interestingly the results of their research show that people and firms were in fact willing to comply with fraud behavior even when there was a risk to their reputations (Tillman, 2009). The significance of this finding is that it highlights that relying too heavily upon informal elements of control may be risky. This knowledge can help to improve control environments which will in turn help to design better prevention strategies.

Literature Review Related to GST Using Archival Data

Qualitative investigations in social science research allow for data and observations to be organized such that a framework for new theory development may emerge (Creswell, 2009). Alternatively, research grounded on existing theories may be used to test those theories. Quantitative research designs analyze the relationship between and amongst variables in a deliberate way so as to determine whether the data shows support for a given theory (Creswell, 2009). Many theories of crime causation exist, and the majority of criminological research is designed to test existing crime theory. Accordingly, this quantitative, cross-sectional study was designed to test how well GST fits within the norms of criminological research.

Cross-sectional research studies are grounded in theory and analyze relationships among variables. Previous studies of GST have mostly involved cross-sectional research designs that rely on existing data, as opposed to new data obtained by surveys or other means. This study also employed a cross-sectional design based on existing data. However, while research designs are fairly consistent across studies of GST, the statistical methods vary. This variation can be ascribed to unique hypotheses and different types of data being analyzed. However, most studies involve the use of some form of correlation or regression analysis to determine whether significant relationships exist between specific variables. The present study employed regression analysis to explore the relationship between strain and various types of occupational fraud.

Archival research is customary in criminological research. For example, Lin et al. (2011) analyzed 3,700 observations from the National Survey of Adolescents, and James

et al. (2014) analyzed 3,217 observations from the same database. Slocum (2010) analyzed 1,468 observations from the Collaborative Perinatal Project and Pathways to Adulthood surveys. Other data sources include the 2006 Supplemental Victimization Survey (Ngo & Paternoster, 2013), the National Survey of Weapon-Related Experiences, Behaviors, and Concerns of High School Youth (Zavala & Spohn, 2013), and the Korean Youth Panel Survey (Jang, Song, & Kim, 2014). In these studies, the researchers leveraged existing data to assign values for variables that could then be analyzed in terms of their interrelationships. Thus, the use of existing data is widely accepted in the field of criminology.

Researchers need to creatively code observations to ensure that the data properly identify all required variables. Using existing data requires careful consideration because the data were not collected with unrelated research efforts in mind. In the Langton and Piquero (2007) GST study, the data used came from a survey conducted between 1976 and 1978. The survey, Nature and Sanctioning of White Collar Crimes, was administered by Stanton Wheeler, David Weisburd and Nancy Bode. Naturally the data collected through this survey was done without any consideration for the Langton and Piquero study. Nonetheless, Langton and Piquero were able to code data in a way that allowed for the valuation of required variables. The sample, after all coding and cleaning, consisted of 1,910 observations. Therefore, Langton and Piquero were able to analyze nearly 2,000 observations within their cross-sectional study. Each observation yielded a strain score as well as an identifier for motivation and offense type.

Several studies have examined GST in the context of non-WCC. For example, Jang et al. (2014) found that strain resulting from being bullied was positively and significantly related to future cyber bullying offenses. Lin et al. (2011) reported that strain resulting from direct violent victimization or witnessing violent victimization had a positive and significant influence on deviant behavioral responses. Hollist et al. (2009) analyzed strain felt by children and showed a positive and significant relationship between maltreatment of a child by the parent and general delinquency, serious delinquency, and substance abuse. Moon and Morash (2013) used data from a survey of junior high school students in the United States and showed a positive and significant correlation between various types of strain and delinquent behavior when the individual was in close association with delinquent peers. Finally, Eitle (2010) looked at recent life events, chronic stressors, and lifetime occurrence of a major and traumatic event and found a positive relationship between strain and delinquent response.

GST posits that certain forms of strain lead to negative emotions, and those negative emotions can, in turn, lead to delinquent behavioral responses. Anger is the negative emotion most often discussed within the domain of strain theory, and GST suggests that anger is most closely associated with deviant coping responses. Ganem (2010) studied the role of negative emotions, specifically anger, frustration, and fear, in deviant behavioral responses within the context of GST. The author reported that both anger and frustration were positively and significantly related to deviant response patterns. Robertson et al. (2010) tested GST in the context of strain created by Hurricane Katrina and its effects on adolescent girls. The results showed a positive and significant

relationship between strain, negative emotional response, and delinquency. Specifically, when anger was the primary negative emotional response to strain, serious delinquency was more likely to follow. When frustration was the primary negative emotional response to strain, minor delinquency followed.

While numerous studies have explored the relationship between strain and non-WCC, few have looked at GST in the context of WCC. Langton and Piquero (2007) studied GST in the context of eight different forms of WCC and reported that strain showed a significant and positive correlation with financial motives and false claims. Their study provides a good starting point for research efforts focused on GST and WCC.

Evidence in the literature supports a link between strain and delinquent behavior. The results of past studies demonstrate that GST may provide a framework for understanding the relationship between strain and crime causation. Therefore, GST is a relevant theory that merits further exploration. Considering the magnitude of fraud losses and the paucity of GST research focused on WCC, a study dedicated to GST in the context of occupational fraud is relevant and significant.

General Strain Theory and Deviant Behavior

GST suggests that strain can be a catalyst for deviant behavior (Agnew, 1992). Accordingly, most studies of GST involve independent variables related to strain that are analyzed in relation to deviant responses. For example, Hay and Meldrum (2010) used a quantitative, cross-sectional design to explore deviant behavior, specifically self-harm, by adolescents. The authors based their study on GST, which posits that strains high in magnitude and perceived as being unjust can lead to deviant or maladaptive responses.

Hay and Meldrum looked at strain in the form of bullying, including physical, verbal, and internet-based interactions, and its relationship to self-harm behaviors. Rather than relying on existing data, the researchers designed and conducted a survey involving 426 students in the United States (average age = 15 years). Students were asked to respond to a series of questions pertaining to their experiences with bullying, acts of self-harm, negative emotions, and other mediating variables. The students participating in the survey were not randomly selected, but chosen from a specific site that was convenient for the researchers. The results of regression analysis revealed significant, positive relationships between self-harm behaviors and all three forms of bullying. Furthermore, the results showed that tangible acts of caring by parents reduced the impact of bullying strain and lowered the risk of self-harm. In addition, adolescents with higher levels of self-control tended to engage in less self-harm in response to bullying strain. While factors other than bullying that were not measured on the survey may have contributed to negative emotions and self-harm, the findings provide evidence to support GST and the role of strain in deviant behavior.

Lin et al. (2011) employed a quantitative, cross-sectional design to study GST in the context of victimization. The researchers hypothesized that the negative effects of witnessing violent victimization (vicarious victimization) were the same as being the actual victim (direct victimization). The negative effects were deviant behavior in the form of violent crimes, property crimes, and drug use. The researchers also considered how depression, low social control, and delinquent peers contributed to or mediated maladaptive responses to violent victimization. The data in this study came from a

random sampling of 3,700 records from the National Survey of Adolescents (NSA). The results showed a positive and significant influence of direct victimization, vicarious victimization, and combined (direct and vicarious) victimization on violent crimes, property crimes, and drug use. In addition, depression, low social control, and association with delinquent peers were contributing factors to deviant behavior. The researchers had limited access to survey response data related to vicarious victimization, and causality cannot be inferred from the results. However, the findings provide additional evidence to support a relationship between strain and deviant actions. Furthermore, this study expanded the idea of strain to include the impact of witnessing violent acts, which adds to the understanding of what might be considered a cause of strain.

Moon and Jonson (2012) studied GST within the context of a law enforcement environment. Specifically, they explored the impact of strain on deviant behavior framed in terms of organizational commitment. Sources of strain were categorized according to the three sources proposed by GST. Those sources include (a) the failure to achieve a valued goal, (b) the removal of a positive element, and (c) the introduction of a negative element. Failure to achieve a valued goal was measured by comparing expected job circumstances to actual job circumstances, removal of a positive element was measured by loss of time with family due to work commitments, and the introduction of a negative element was measured by studying stressors that arise due to working in a dangerous occupation. The researchers hypothesized that as the strains experienced by police officers increased, commitment to their respective agencies would decrease. Based on

survey data from 180 police officers in Kentucky, the results showed that all three sources of strain were positively related to decreased commitment to the police agency. These findings suggest that the law enforcement industry might consider ways to reduce the gap between job expectations and actual job demands and to minimize time away from family. However, while these findings support GST, some limitations apply. First, occupational commitment was used as a proxy for deviant behavior, the assumption being that the less committed an individual is to their agency, the more likely they are to engage in occupational crime. Second, the sample was not random, was relatively small, and consisted almost entirely of white males. Thus, the results of this study may not be generalizable to other populations. Nevertheless, the results were consistent with other, similar studies (Slocum, 2010; Stogner & Gibson, 2010a).

Previous GST research has focused largely on strain rather the emotional responses to strain. GST includes consideration of negative emotional responses to strain, and the theory posits that anger is most closely associated with deviant coping responses. Ganem (2010) looked at the relationship between three specific negative emotions—anger, frustration, and fear—and deviant behavior. This cross-sectional study involved data from surveys administered to 331 undergraduate students at a college in the United States. Participants were asked to respond to various scenarios in terms of their perceived emotions and related responses. The results showed that anger in response to strain was associated with deviant responses that inflicted harm on others, while frustration in response to a strain was associated with nonviolent deviant responses. These findings suggest that various negative emotions result from different forms of

strain and that not all negative emotions lead to the same forms of deviant behaviors. This study provides a better understanding of the role of negative emotions within the domain of GST.

According to GST, the criminogenic effect of strain is most prevalent when the strain is perceived to be high in magnitude and particularly unjust. James et al. (2014) studied student perceptions of unfair treatment by school officials and its relationship to two delinquent behaviors: fighting in school and bringing a weapon to school. The researchers also looked at the effects of strong social control in the form of adult support and friend support. The data were obtained from a nonrandom sample of 3,217 participants in a national survey of adolescent behavior. The results showed that as strain from perceived unfair treatment at school increased, so did the rate of fighting and weapon carrying. Delinquent responses were reduced when stronger adult social control was in place, but friend-based social support had no effect. These findings suggest that adult social control may be a mechanism for reducing delinquent behavior in response to unfair treatment at school. In addition, the authors suggested that school systems should build policies and actions that create a culture of fairness so as to reduce the strain originating from perceived unfair treatment. The results show support for GST, particularly the prediction that unjust treatment exacerbates the effects of strain on deviant behavior, and are consistent with results from similar studies (Ganem, 2010; Hay & Meldrum, 2010).

Certain forms of strain lead to negative emotions, and those negative emotions can, in turn, lead to delinquent behavioral responses (Agnew, 1985). Robertson et al.

(2010) analyzed data from a unique population of 261 female adolescents in regard to strain arising from Hurricane Katrina. The subjects were at-risk or high-risk students, many of who were already in the system due to economic need or behavioral issues. The researchers looked at the relationship between negative emotions arising from strain, including anger, frustration, and anxiety, and serious delinquency, minor delinquency, and continued involvement in the juvenile justice system. The analysis was conducted using structural equation modeling (SEM). A series of hypotheses were compared to actual data, and goodness of fit analyses were conducted. The results support a positive and significant relationship between strain and delinquency. For example, serious delinquency was associated with anger in response to strain, while minor delinquency was associated with frustration in response to strain. This unique study of at-risk female adolescents did not involve a random sample, and the majority of individuals in the sample had suffered many other strains in their life, as evidenced by their involvement with juvenile delinquent services prior to Hurricane Katrina. While the results are not generalizable, they are consistent with previous studies (Ngo & Paternoster, 2013; Reid & Piquero, 2013; Robertson et al. , 2010).

Slocum (2010) studied GST in the context of substance abuse. The researchers in this cross-sectional study used existing data from two national databases, the Collaborative Perinatal Project and Pathways to Adulthood, which contain longitudinal data on women in the Baltimore area. The researchers carefully described the complex array of factors that might contribute to delinquent behavior and measured these effects in terms of social structure and individual-level variables. The random sample of 1,468

observations provided information on childhood stressors, adolescent stressors, adult stressors, socioeconomic status, parenting, negative emotionality and low control, and depression. The dependent variables were adolescent drug use or drug use in the past year and SEM was used to analyze the data. The results showed positive and significant relationships between strain, negative emotionality, and drug use. In addition, the results indicated that individuals born into low socioeconomic and high-risk environments were more likely to deal with stressors in a maladaptive way. The effects of other variables were unclear, perhaps due to the vast number of traits being studied over time. This study compared many more individual-level factors than most previous GST studies and, although not generalizable, the findings add to the body of knowledge related to GST and the cumulative and sustained effects of strain over time.

Hollist et al. (2009) studied adolescent maltreatment in the context of GST. The researchers in this cross-sectional study used existing data from the National Survey of Children to analyze strain felt by children due to their parents (n = 1,423). The independent variable was maltreatment of a child by the parent, and the dependent variables were general delinquency, serious delinquency, and substance abuse. Three mediating variables, anger, anxiety, and depression, were also included in the analysis. The results revealed a positive and significant relationship between maltreatment and the various forms of delinquent responses. In addition, negative emotionality arising from maltreatment appeared to be a stronger catalyst for delinquent behavior than the maltreatment itself. While not fully generalizable, these findings lend support to previous studies showing that children who are maltreated by their parents turn to delinquent

behavior as a coping strategy, and provide strong support for the role of negative emotionality in GST.

GST suggests that strain triggers negative emotions that, in turn, trigger response behaviors. Ngo and Paternoster (2013) studied stalking strain, emotional responses, and response behaviors in a cross-sectional analysis of 1,599 records from the 2006 Supplemental Victimization Survey. Stalking strain was categorized as either surveillance strain or approach strain. Six emotional responses to strain were identified: anxious, annoyed/angry, frightened, depressed, helpless, and physical sickness. The five response behaviors were change in daily activities, take protective measures, enlist the help of others, move, and report to the police. Results from prior research suggest that emotions are generally not isolated and tend to surface in clusters. Ngo and Paternoster (2013) sought to analyze the concurrent impact of multiple emotions on behavioral response. The researchers also analyzed differences in emotional and behavioral responses between females and males. The results showed that females had higher levels of concurrent emotions than males. Anger in response to stalking strain was associated with legitimate and illegitimate coping behaviors. In addition, males experiencing anger combined with any other form of negative emotion were more likely to respond in illegitimate ways compared to females. These findings are consistent with GST, which posits that anger resulting from strain is one of the best predictors of delinquent response. Several other studies have supported the role of anger in this regard. However, this study departs from prior research in terms of the role of anger in delinquent behavior; this difference should be addressed in future research.

Prior research (Zavala & Spohn, 2013) suggested that victims of crime are more likely than non-victims to act out in delinquent ways. Zavala and Spohn (2013) sought to test the victim-perpetrator connection within the context of GST. Their cross-sectional study used data from the National Survey of Weapon-Related Experiences, Behaviors, and Concerns of High School Youth. A sample of 734 observations, representing male high school sophomores and juniors, was analyzed using regression analysis. The two independent variables were vicarious strain and anticipated strain, and the two dependent variables were victimization and perpetration of a crime. The results showed a positive and significant relationship between vicarious strain and both victimization and offending, whereas for anticipated strain, a positive and significant relationship was found only for victimization. These findings support the idea that victims eventually become offenders, which is consistent with previous research (Hollist et al., 2009; B. Moon & Morash, 2013). However, this relationship appears to be strongest when individuals witness actual offenses as opposed to anticipating offenses that might happen.

Jang et al. (2014) studied GST in the context of bullying. This cross-sectional study used data from the Korean Youth Panel Survey to determine whether being a victim of bullying was related to becoming a cyber-bully. A total of 3,238 observations were analyzed using a random-intercept logistic regression model. The independent variable was bully victimization, and the dependent variable was cyber bullying behavior. The results showed that strain due to being bullied was positively and significantly related to future cyber bullying offenses. The findings of this longitudinal study support

GST, although the results are not generalizable, and suggest that interventions related to bullying may minimize future cyber bullying issues.

Moon, B., and Morash (2013) looked at GST in the context of school intervention strategies. This cross-sectional study used data from a survey administered to 296 junior high school students in the southern United States. The independent variables were (a) negative life events, (b) family conflict, (c) emotional punishment by teachers, (d) racial discrimination, (e) being bullied, (f) criminal victimization, and (g) negative community environment. The three dependent variables were (a) violent delinquency, (b) property delinquency, and (c) status delinquency. The results showed a positive and significant correlation between various types of strain, such as emotional punishment by teachers, and delinquent behavior when the individual was in close association with delinquent peers. These findings provide support for GST and the theory of differential association. The theory of differential association states that criminal behavior is learned through close association with others (Association of Certified Fraud Examiners, 2009). In addition, the findings suggest that positive relationships between youth and adults may reduce the number of delinquent behaviors in response to strain. School policy and administration should address emotional strain caused by teachers to reduce deviant behavior. Finally, the results of this study are consistent with findings from previous research suggesting that positive adult relationships with youth can serve as a mediating factor in delinquent behavior.

Eitle (2010) studied deviant behavior by adult males within a public school setting. This cross-sectional study used existed data from a longitudinal survey

conducted in Miami-Dade public schools. Three independent variables were used: recent life events, chronic stressors, and lifetime occurrence of a major and traumatic event. The two dependent variables were delinquent behavior persistence and delinquent behavior desistence. Based on GST, the author hypothesized that if strain leads to negative emotions and maladaptive coping strategies, then a reduction in strain should reduce negative emotions and maladaptive response patterns. The results showed a positive relationship between strain and delinquent responses. In addition, anger proved to be an important emotional element. Anger was associated with greater delinquent persistence, but less evidence was found for the emotional connectedness of self-esteem. These findings support the relationship between strain and delinquent response, as described by GST, and the importance of anger in converting stress to delinquent behavior.

Stogner and Gibson (2010) tested GST in a cross-sectional study that used data from the National Longitudinal Study of Adolescent Health. The sample consisted of 4,834 observations of students between Grades 7 and 12. The independent variable was a health score based on a 14-item health index. The three dependent variables were general delinquency, property crimes, and violence. The results showed a significant and positive relationship between health strain and delinquent behavior, which is consistent with other GST studies showing that strain may lead to negative emotions. However, previous research has shown mixed results regarding the relationship between health issues and criminal or deviant behavior. The study by Stogner and Gibson (2010) addressed a gap in the literature pertaining to health challenges as a stressor and possible

catalyst for deviant behavior. The findings of this study could be directed toward school officials to aid in policy and administrative changes aimed at offering additional support services to students with health challenges.

Reid and Piquero (2013) conducted a study of GST in the context of youth sexual exploitation. This cross-sectional study used data from the Pathways to Desistence study, which collected longitudinal data on delinquent youth in an effort to track environmental factors and behavioral responses. The study collected data from 1,354 observations and used SEM to analyze the relationships between caregiver strain and running away, early use of alcohol, early use of drugs, and early engagement in sexual activities. The results showed significant and positive relationships between caregiver strain and all types of deviant responses. The results also showed that nurturing had a mediating effect on this relationship. Caregiver situations that involved alcohol, drug, or legal issues were associated with reduced nurturing, which was associated with an increase in negative emotionality. Furthermore, when analyzed by gender, the results revealed differences between males and females in regard to the impact of nurturing. While the results are not generalizable, the results show empirical support for GST. Furthermore, they highlight the need to further understand the connection between nurturing and maladaptive coping strategies, including differences in coping strategies between males and females, and to better understand the role of nurturing in responsible caregiver-child relationships.

Summary and Conclusions

GST has been studied in a wide variety of contexts. Strain, as defined by GST, has been measured and analyzed in relation to many different types of deviant,

delinquent, and criminal behaviors. Based on these studies, empirical evidence supports GST. Results show that deviant response patterns are associated with strain that is high in magnitude and perceived as unjust. However, most of the evidence in support of GST has come from studies that looked at non-WCC. One study has explored GST in the context of WCC (Langton & Piquero, 2007), and no studies have directly explored GST in the context of occupational fraud. Therefore, a gap in the literature exists in regard to GST and WCC, specifically occupational fraud.

Several themes have emerged from GST research. These themes include concepts related to the origins of strain, characteristics of perpetrators, and the role of negative emotions in relation to strain. GST, as explained by Agnew, does not specify the precise types of strain that lead to delinquent and deviant behavior. Strain is a pressure felt by a person as a result of the removal of a positive stimulus, the presence of a negative stimulus, or the failure to achieve a positively valued goal (Agnew, 1985). Because of the broad range of strains that might fall into these three categories researchers have taken creative approaches in order to measure strain.

Lin, Cochran and Mieczkowski (2011) reviewed survey responses from the National Survey of Adolescents. These researchers determined which responses merited classification as violent victimization, vicarious victimization, or no victimization. In other words, victimization was not specifically cited in the survey. The researchers had to use judgment in their assessment. The theoretical foundation for their determination was rooted in the idea that victimization presented a negative stimulus and thereby caused strain. James et al. (2014) also based their research on the foundational idea that

the presence of a negative stimulus would lead to strain. In their study, which used national survey data, they determined that survey responses indicating a feeling of unfair treatment from school officials translated to the presence of a negative stimulus. As such they coded those responses as strainful ones. In each of these cases researchers assessed survey responses in the context of the theoretical foundation of GST.

Another major theme in the current literature pertained to the descriptive characteristics of the perpetrators. A review of the current literature highlights that the range of people studied in relation to GST was from adolescents through senior citizens, from the poor to the wealthy, and from many different nationalities (Hay & Meldrum, 2010; Langton & Piquero, 2007; Lin et al., 2011; Zavala & Spohn, 2013). Agnew (1985) claimed that GST would apply to all forms of delinquent acts and deviant behaviors. In alignment with that concept all ages, nationalities, socio-economic ranges are subject to the impacts of strain. Current literature has put this idea to the test through the various populations studied in relation to GST.

Key to GST is the role of negative emotionality. Agnew, when developing GST, recognized the challenges associated with measuring emotionality (Agnew, 1985). A theme emerging from current literature pertains to either the overt analysis of emotionality or the overt recognition that emotionality factors are estimated. Langton and Piquero (2007) overtly stated their use of crime motivation as a proxy for negative emotionality. Ganem (2010) specifically analyzed the role of emotional responses in relation to strain theory. Ganem specifically measured and analyzed anger, frustration, and fear in relation to various strains and corresponding delinquent behaviors.

Current literature supports GST within a variety of contexts. Empirical evidence shows positive and significant relationships between strain and deviant acts. These results have been found from within populations of various ages, nationalities, and socio-economic backgrounds. The quantity of literature and findings validates the merits of GST. Lacking, however, is a more direct and specific understanding of the relationships between strain and occupational fraud. As such, current literature is lacking with regard to direction and suggestions as to ideas related to fraud detection and prevention. Specific analysis is needed to in this domain to support efforts aimed at reducing fraud losses.

Evidence suggests that fraud losses may negatively impact the global economy by over $3 trillion annually. Therefore, a study focused specifically on the relationship between strain and occupational fraud is relevant. Previous studies have provided empirical support for GST, a criminological theory that posits that strain is positively and significantly related to various forms of delinquent responses. This dissertation addressed gaps in the literature by examining the relationship between strain and occupational fraud. Further understanding of GST in the context of occupational fraud may present opportunities to enhance fraud detection and prevention strategies.

The gap in literature, as previously defined, was addressed through a quantitative cross-sectional study that specifically isolated strain factors, as posited by Agnew, and the three types of occupational frauds. Chapter 3 addresses the nature of this specific study and how that analysis addresses the gap in the literature.

Chapter 3: Research Method

The purpose of this quantitative, cross-sectional study using secondary data was to examine if and to what extent there was a relationship between strain and occupational fraud in the context of GST. Specifically, mean strain scores between (a) asset misappropriation offenses, (b) corruption offenses, and (c) fraudulent financial statement offenses were compared. Additionally, if there was and to what extent there was a relationship between strain and (a) asset misappropriation, (b) corruption, and (c) fraudulent financial statements was analyzed. Strain theory has been in the criminology literature for over 50 years and has undergone numerous revisions. GST has been difficult to test (Agnew, 2001); however, past researchers have found creative ways to quantify strain factors in order to investigate relationships between strain and various offenses. The purpose of this cross-sectional, quantitative study was to advance the body of knowledge related to GST in the context of WCC.

The research problem of this study related to fraud losses that impact the United States and global economies. In this context, fraud was viewed as a form of WCC. The focus of this study related to the relationship between the dependent variable of occupational fraud offenses and the independent variable of strain. Therefore, the research problem was connected to the purpose of this study through a quantitative, cross-sectional, study of occupational fraud in the context of GST. Three research questions and 13 hypotheses were created to address the research problem and to satisfy the purpose of this research. Details pertaining to the fulfillment of the research purpose

are explained in this chapter through discussions related to research design and methodology.

This chapter presents a discussion of the research design and rationale, methodology, threats to validity, and ethical considerations. In addition, information is presented on population, sampling procedures, details related to the origin and use of archival data, evidence of instrument reliability, variable operationalization, and data analysis. This chapter provides sufficient detail such that other researchers could replicate this study by following the exact steps, in sequence, as are described in this chapter.

Research Design and Rationale

Through the theoretical framework related to GST, Agnew (2012) reported on the types of strain that were most frequently associated with negative emotionality and delinquent response patterns. For this study, and based on this information, an independent variable representing strain was created. Each occupational fraud case in the data set contained an independent variable denoting the strain score for that specific occupational fraud case. GST literature, as developed by Agnew (2012), also details a necessary linkage between strain and negative emotional responses. Because of this linkage it was imperative for this study to also create an independent variable that denoted negative emotionality. For this study fraud motivation served as a proxy for negative emotionality. Each fraud case contained an independent variable representing fraud motivation. Three types of fraud motivation, including (a) personal motivation, (b) financial motivation, and (c) work-related motivation, were used in this study to serve as

the independent variables representing negative emotionality. The dependent variables in this study were the three types of occupational fraud offenses. Those offenses include (a) asset misappropriation, (b) corruption, and (c) fraudulent financial statements. Lastly, data pertaining to perpetrator gender served as a control variable. In summary, in this quantitative, cross-sectional study using secondary data was conducted to examine if, and to what extent, there was a relationship between strain and occupational fraud in the context of GST. This study utilized an independent variable for strain score as well as independent variables for three different types of fraud motivation. These independent variables were analyzed in relation to the dependent variables of each occupational fraud type while controlling for perpetrator gender.

For this quantitative, cross-sectional study, secondary data were obtained from an archival ACFE database that contains a variety of information and measures related to occupational fraud offenses. Every 2 years since 1996, the ACFE has conducted a survey to collect data related to occupational fraud offenses. A sample of 5,672 participants was obtained, covering the period from 2004 to 2012.

The survey instrument contains 87 questions. Occupational fraud offenses were assigned to one of three categories: asset misappropriation, corruption, or fraudulent financial statements. Those categories represented the dependent variables of this study. Strain scores, representing an independent variable, were calculated based on survey response data related to educational level, warning signs, prior convictions, and past employment history. Perpetrator gender was used as a control variable.

Specifically, mean strain scores between (a) asset misappropriation offenses, (b) corruption offenses, and (c) fraudulent financial statement offenses were compared. Additionally, this study analyzed if there was and to what extent there was a relationship between strain and (a) asset misappropriation, (b) corruption, and (c) fraudulent financial statements. Lastly, if there was and to what extent there was a correlation between fraud motivation and (a) asset misappropriation, (b) corruption, and (c) fraudulent financial statements was analyzed. To address this purpose, three research questions were developed. Research Question 1 asked the following question: Is there a difference in strain scores for asset misappropriation fraud offenses, corruption fraud offenses, and fraudulent financial statement offenses? Research Question 2 asked the following question: Is there a significant relationship between strain scores and asset misappropriation fraud offenses, corruption fraud offenses, and fraudulent financial statement offenses? Research Question 3 asked the following: Is there a statistically significant correlation between fraud motivation and asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses? The design of the present study allowed for the research questions to be addressed through 13 testable hypotheses.

To conduct research grounded in a GST framework, at least one variable, representing an independent variable, must measure strain. That independent variable representing strain must then be analyzed in relation to some form of delinquent behavior. This study satisfied this criterion through the creation of a strain score for each occupational fraud offense. Additionally, this criterion was satisfied by ensuring that

each fraud offense had a calculated strain score. GST also requires that the relationship between negative emotionality be studied in relation to the delinquent behavior. This study utilized three independent variables that represented fraud motivation that served as proxy variables for negative emotionality. Through the study of the relationship between fraud motivation and each respective occupational fraud type the criteria related to negative emotionality was satisfied.

The choice to use secondary data for this study was made because the benefits outweighed the costs. Secondary analysis of survey data has benefits and limitations. Benefits pertain to cost and time savings, while limitations relate to the survey design being created without knowledge of future application (Kiecolt & Nathan, 1985). The ACFE database contains information that is consistent with the type and quality used in prior studies related to GST. The ACFE database has been cited in numerous published studies related to occupational fraud. Because of its wide use, and because the ACFE database contains 8 years of data, it is credible source for use in this study. The ACFE database was made available through the joint management of the ACFE and the Institute for Fraud Prevention (IFP). The IFP governs a selection and review process that is related to the release of the ACFE database and involves time and resource constraints. For this study, the constraints were addressed, and access to the ACFE database was granted.

Qualitative investigations in social science research allow for data and observations to be organized such that a framework for new theory development may emerge (Creswell, 2009). Presently many theories of crime causation exist, and the

majority of criminological research is quantitative in nature. Thus, a quantitative study of GST is consistent with the norms of criminological research. In addition, previous studies of GST have mostly involved cross-sectional research designs that rely on existing data, as opposed to new data obtained by surveys or other means. This study also used a cross-sectional design and existing data. Based on evidence demonstrating that criminological research related to GST has been conducted largely with quantitative, cross-sectional, designs utilizing secondary data, the choice to develop a similar research design was justified. When this fact was coupled with the realization that the data source for this study came from the respected and credible ACFE Report to the Nations database, there was confidence that the research design, and the quality of data, did appropriately address the stated research questions.

A nonexperimental method of research, classified as cross-sectional, is one that does not require the same rigor related to manipulation and control as found in experiments (Frankfort-Nachmias & Nachmias, 2008). Cross-sectional methods allow for more latitude in those areas. However, those latitudes come at a cost. That cost is paid in form of inferences related to causality. Stated differently, cross-sectional studies allow the researcher to use data without employing manipulation on the independent variable and without having the same tight controls over influencing conditions. Control, however, is still sought to the extent it can be attained. Regardless, various statistical approaches can be used to improve the type of reasonable inferences that can be attained. Because of statistical options and the reality that in many social sciences research

projects the researcher does not have the luxury of manipulation and control, the cross-sectional method is very popular (Frankfort-Nachmias & Nachmias, 2008).

A cross-sectional research design, grounded on the GST, was appropriate. This study was designed to handle a descriptive understanding between three different offender types. Those offender types are perpetrators of asset misappropriation, corruption, and financial statement fraud. Furthermore, with the help of more sophisticated statistics, this study produced results capable of supporting inferences about possible relationships between strain, negative emotionality and occupational fraud offenses. To that end, in the domain of quantitative research the cross-sectional method was acceptable.

Methodology

In the methodology section the research study is described in sufficient detail so that other researchers can replicate this study. Included in this discussion is information pertaining to (a) population, (b) sampling procedures, (c) archival data, and (d) the operationalization of each variable. Following the methodology section is a discussion related to validity.

Population and Sampling

Occupational fraud is defined as the use of an occupation to commit fraud. Perpetrators of occupational fraud offenses represent the target population of this study. Individual perpetrators represent the specific unit of study. A target population that represents all instances of occupational fraud was appropriate as it related to addressing the specific research questions of this study. To address the research questions data must

represent fraud offenses that are occupational in nature. Occupational frauds require the use of one's occupation to commit the fraud offense. A target population representing occupational fraud offenses, and offenders, produced the necessary data for addressing the stated research questions.

Sampling and Sampling Procedures

A nonrandom purposive sampling procedure was used to select perpetrators from the ACFE survey. In this survey, information on perpetrators was not supplied by the offenders themselves, but by the certified fraud examiner (CFE) assigned to their case. The perpetrators represent over 100 countries on six continents (ACFE, 2012); however, the majority of perpetrators are from the United States. The perpetrators represent several different industries and a wide range of work positions, including employees, managers, executives, and business owners. The level of education ranges from high school diploma to postgraduate degrees. Each case is associated with one of three types of occupational fraud: asset misappropriation, corruption, and fraudulent financial statements.

A sample of 5,672 cases was obtained from the ACFE survey database. Using GPower software, the power associated with this sample size was calculated. Given an effect size of .30 and $\alpha = .05$, the power is 1.00. Changes in the effect size and α values had no effect on this result because of the large sample size. Therefore the sample size was adequate for this study and, in conjunction with the design of the study, provided reasonable assurance that a Type II error did not occur.

Perpetrators of occupational fraud offenses represented the target population of this study. Individual perpetrators represented the specific unit of study. A target population that represented all instances of occupational fraud was appropriate as it related to addressing the specific research questions of this study. To address the research questions data represented fraud offenses that were occupational in nature. Occupational frauds require the use of ones occupation to commit the fraud offense. A target population representing occupational fraud offenses, and offenders, produced the necessary data for addressing the research questions.

With all occupational fraud offenses representing the target population a nonrandom purposive sampling procedure was used to select the individual cases of occupational fraud that generated the data needed to address the stated research questions of this study. A nonrandom purposive sampling procedure allowed for focused data collection that generated the specific data necessary to associate strain scores and fraud motivation to each respective occupational fraud case. These specific data were needed in order to compute strain scores delineated by occupational fraud type. Data of this nature were used to address both Research Question 1 and research question 2. Additionally, data from this sampling procedure allowed for the coding of an occupational fraud motivation type for each type of occupational fraud offense. Data of this nature was necessary for addressing research question 3. Research question 3 addressed fraud motivation in relation to the three forms of occupational fraud. A nonrandom purposive sampling procedure was appropriate for this study because it allowed for a focused set of data specifically related to occupational fraud offenses.

Additionally, it allowed for data in which strain scores, as posited by GST, were aligned with each occupational fraud case in the sample. This sampling procedure also allowed for data in which an understanding of fraud motivation was aligned with each occupational fraud case in the sample. Data for each occupational fraud type in the data set, representing strain scores and motivation was necessary to test each of the hypotheses developed, which addressed the three research questions previously presented.

Archival Data Procedures

Oftentimes in social science research, survey data is used (Frankfort-Nachmias & Nachmias, 2008). Social science researchers can develop new survey instruments or they can use existing survey instruments. Surveys are carried out throughout various venues. However, at times a researcher may not need to develop out a new survey to get access to data for their study. Rather, they may be able to leverage existing data. Naturally, there are benefits and costs to using existing data (Creswell, 2009). When researchers conduct their own surveys, they are closer to the data in all phases and as such there is an added benefit and richness to the data. Quite simply, more is known about the data. However, there is a cost, monetarily and otherwise, in conducting a survey. Therefore, if the researcher finds it acceptable to be somewhat removed from the data collection, using existing data may be considered. Using existing data is often referred to as secondary analysis (Martin & Bridgmon, 2012).

Using existing data can be beneficial. Two such benefits include time savings and cost savings (Frankfort-Nachmias & Nachmias, 2008). There are, however, limitations to using existing data. One limitation is that the data may not have been collected, or may

not contain the precise information that the researcher (using the existing data) wants. Therefore, researchers have to be creative and thoughtful in respect to making the existing data most meaningful for their purposes.

The information regarding the participants in this study was accessed through the ACFE Report to the Nations on Occupational Fraud and Abuse database. The ACFE database contains information related to occupational fraud cases, as supplied by CFE's. The timeframe covered within the ACFE database, used for this study, ranged from 2004 through 2012. The online survey asked for information related to occupational fraud cases that the CFE's had direct association with and primary knowledge thereof.

There were 5,672 participants represented in the ACFE database. Each participant represented an occupational fraud perpetrator. The participants represented offenses stemming from more than 100 countries (Association of Certified Fraud Examiners, 2012). In an effort to collect data related to occupational fraud, for research and learning purposes, the ACFE invited CFE's to respond to a biennial online survey. The survey was designed to collect detailed information about each offense. Information collected related to both the victims and the perpetrators.

The ACFE database contained survey data from CFEs who were asked to provide details related to the single largest occupational fraud case they had investigated. The respondents had to be CFE's in good standing at the time of the survey. The case must have involved occupational fraud, the investigation had to have occurred after January of the year preceding the survey request, the investigation had to be completed at the time of the survey, and the CFE had to be reasonably sure that the perpetrators were identified.

With regard to the timeframe represented by the data, the survey was administered every two years. Therefore, the 2004 survey contained responses representing cases from January, 2002 through October, 2004. The 2006 survey contained responses representing cases from January 2004 through October 2006. Each successive survey administered followed the same timing pattern. The respondents had to be CFE's in good standing at the time of survey launch. On average, the respondents had over 10 years of professional experience in the field of fraud examination and included. Each respondent was asked to supply detailed information, in response to 87 questions, about an occupational fraud case they had investigated. The respondents represented internal auditors, fraud examiners, and law enforcement officers.

The survey instrument used by the ACFE contained 87 questions. The survey responses were submitted by the Certified Fraud Examiners (CFE's) who directly investigated their respective occupational fraud cases. Data was collected within this survey that addressed factors related to (a) educational history, (b) past fraud behavior, (c) addiction problems, (d) divorce history, (e) past legal problems, and (f) past employment problems. Data from these categorical areas was necessary to compute strain scores by offense type. Data was also collected from this survey that identifies sixteen warning signs related to committing occupational fraud offenses. Each of those warning signs was assigned to one of three fraud motivation types. Those types included (a) personal, (b) financial, and (c) work-related. The use of secondary data, as supplied by the ACFE data set, was appropriate because it allowed for the specific and direct alignment of data, by occupational offense type, such that strain scores and fraud

motivation were analyzed in relation to each occupational fraud type. This was specifically what the research questions aimed to address.

To address research question 1 and research question 2, a strain score for each occupational fraud case was generated. The ACFE database contained data related to educational level, prior convictions, various fraud warning signs, and past employment issues. These data, coded dichotomously, were used to compute a strain score for each occupational fraud case. This approach to strain score valuation was consistent with prior studies (Langton & Piquero, 2007). As suggested through GST literature (Agnew, 2012), data of this nature can be used to compute strain scores within the theoretical framework of GST. To address research question 3 each occupational fraud case had to have one of three motivation types aligned with it. Consistent with prior research (Langton & Piquero, 2007) data pertaining to fraud warning signs can be categorized into motivation factors representing (a) personal, (b) financial, or (c) work-related. The independent variables in this quantitative, cross-sectional study, using secondary data were aligned and coded such that proper data organization and type were used to address the three research questions of this study.

Each year, the IFP accepts written applications for access to the database in the form of project proposals. Each project proposal must include the research questions, the hypotheses, a brief literature review, the research methodology, the variables, database utilization, and the purpose and benefit of the study. Upon approval of the project proposal, the researcher is invited to New York City to formally present the research plan to the IFP Board of Directors and other affected constituents. In November 2013,

following a formal presentation to the IFP Board of Directors, the IFP granted permission for the ACFE database to be used for this dissertation. The approval letter granting access to the ACFE database can be found in the appendix.

Instrumentation and Operationalization of Constructs

Several previous studies have used archival secondary data to test GST (Eitle, 2010; Hollist et al. 2009; James et al. 2014; Jang et al., 2014; Langton & Piquero, 2007; Lin et al., 2011; Ngo & Paternoster, 2013; Reid & Piquero, 2013; Slocum, 2010; Stogner & Gibson, 2010; Zavala & Spohn, 2013). Central to GST is the idea that strain leads to deviant behavior. Therefore, empirical studies of GST involve the computation of strain scores. In each of the studies noted above, the authors used archival data to create an independent variable representing strain. For example, James et al. (2014) based strain scores on scaled responses related to perceived unfair treatment as understood through survey responses. Slocum (2010) used extensive interviews to gather information from participants about discrete and significant past life events that related to education, employment, family composition, health, income, neighborhood characteristics, substance abuse, and social relationships. Responses to these topics provided data used to create a strain score. Strain was categorized as childhood stressors, adolescent stressors, or adult stressors.

Langton and Piquero (2007) constructed their independent variable for strain based on six strain indicators: (a) number of legal marriages, (b) condition of neighborhood of residence, (c) academic performance, (d) value of assets, (e) value of liabilities, and (f) employment history over last five years. Each of these strain indicators

was coded with either a 0 or a 1. In all cases, a 1 was used to denote a more stressful condition; therefore, the higher the strain score, the higher the strain. Negative emotionality was measured in the form of crime motivation: financial, personal, or business. These variables were also dichotomous. An observation was coded with a 1 when the primary motivation was related to that specific offense. Thus, each observation was coded with one of the three motivation types. Lastly, eight different offense types were analyzed. Each of these variables was coded with a 1 to represent the offense type. The eight offenses were antitrust violations, bribery, false claims, embezzlement, mail and wire fraud, SEC violations, tax violations, and lending and credit fraud.

Bunch and Clay-Warner (2014) conducted a study based on perceptions of injustice and school violence. The independent variable, as posited by GST, is strain. Strain is suggested to lead to negative emotion. Negative emotion is suggested to lead to delinquent behavior. In this study delinquent behavior represented the dependent variable. This study was designed to test the relationship between variables of strain which represent the independent variable and delinquency. In this study strain was the result of perceived unfair treatment from school teachers. As students perceived that they were being treated unfairly they felt strain. The authors based strain scores upon scaled responses related to perceived unfair treatment as understood through survey responses. Delinquency was determined to be school violence. The general premise of the study was that strain from unfair treatment would result in acting out at school with violence. Using archival survey data the authors measured a score for the strain variable.

Slocum (2010), conducted a study addressing strain in conjunction with substance abuse. Two national databases were used in the study. Those databases included the Collaborative Perinatal Project (CPP) and the Pathways to Adulthood (PTA). The databases contained data on randomly selected women from the Baltimore area. The same women were represented in both the CPP and PTA data. As such this study offered the opportunity to study strains over time in a longitudinal fashion. The sample consisted of 1,468 observations. The researchers in this study categorized the independent variables of strain into three categories. Those categories included (a) childhood stressors, (b) adolescent stressors, and (c) adult stressors. Through extensive interviews the participants were asked to recall discrete and significant past life events that related to education, employment, family composition, health income, neighborhood characteristics, substance abuse, and social relationships. Responses to these topic areas provided data that the authors used to create a strain score. The strain score represented the independent variable. Additionally, based upon the nature of data over time, the researchers were able to measure mediating variables related to four categories. Those categories included (a) low socioeconomic position, (b) parenting, (c) negative emotionality and low control, and (d) depression. The dependent variables were identified as being either adolescent drug use or past year drug use. This study analyzed the relationship between the independent variable of strain score with the dependent variables of deviant behavior measured through drug use.

This study was designed to analyze the relationship between strain and occupational fraud. Strain scores were used for the independent variable, consistent with

previous GST research. The ACFE database contains participant responses related to educational level, prior convictions, warning signs, and past employment issues. These factors, coded dichotomously, were used to compute a strain score for each occupational fraud offense.

Question 66 of the ACFE survey addressed the perpetrator's education level. The response options include (a) did not complete high school, (b) high school graduate, (c) some college, (d) college degree, (e) postgraduate degree, (f) do not know, and (g) other. Any record with a response indicating either noncompletion of high school or high school diploma was coded with a 1. All other responses were coded with a 0. Question 69 of the ACFE survey addresses the notion of past fraudulent behavior. The response options included (a) perpetrator had previously been convicted, (b) perpetrator had previously been charged but not convicted, (c) perpetrator had never been charged or convicted, (d) do not know, and (e) other. Any response suggesting previous conviction or previous charges was coded with a 1. All other responses were coded with a 0.

Question 67 of the ACFE survey addresses warning signs related to the perpetrators. The 16 warning signs are (a) addiction problems; (b) recent divorce or family problem; (c) past legal problems unrelated to this fraud; (d) unusual irritability, suspiciousness, or defensiveness; (e) instability in life circumstances; (f) refusal or reluctance to take vacations; (g) a general "wheeler-dealer" attitude; (h) financial difficulties or high personal debt; (i) living beyond his or her means; (j) frequent complaints about inadequate pay; (k) frequent complaints about lack of authority or having been passed over for promotion; (l) unusually close association with a vendor or

customer; (m) excessive pressure to perform within the organization; (n) excessive control issues regarding job; (o) history of other employment-related problems; and (p) excessive family or peer pressure for success. Each warning sign identified by the respondent was coded with a 1. Therefore, the more warning signs, the higher the strain score.

Question 70 of the ACFE survey addressed past employment history. The response options included (a) perpetrator had previously been punished, (b) perpetrator had previously been terminated, (c) perpetrator had never been punished or terminated, (d) don't know, and (e) other. Any response suggesting previous punishment or termination was coded with a 1. All other responses were coded with a 0.

GST also posits that the presence of strain may lead to negative emotional responses. Therefore, the present study included data relating to negative emotionality. Consistent with prior studies (Langton & Piquero, 2007), data related to warning signs was used to assign an offense motivation for each record. Using motivational force as a proxy for negative emotionality is consistent with previous GST research related to WCC (Langton & Piquero, 2007). Question 67 in the ACFE survey addressed risk factors demonstrated by offenders. The sixteen risk factors described above were assigned to one of the three motivational factors. The risk factors associated with personal motivation were (a) addiction problems; (b) recent divorce or family problem; (c) past legal problems unrelated to this fraud; (d) unusual irritability, suspiciousness, or defensiveness; (e) instability in life circumstances; (f) refusal or reluctance to take vacations; (g) excessive family or peer pressure for success; and (h) general "wheeler-

dealer" attitude. The risk factors associated with financial motivation were (a) financial difficulties or high personal debt, (b) living beyond his or her means, (c) history of other employment-related problems, and (d) frequent complaints about inadequate pay. The risk factors associated with work-related motivation were (a) frequent complaints about lack of authority or having been passed over for promotion, (b) unusually close association with a vendor or customer, (c) excessive control issues regarding job, and (d) excessive pressure to perform within the organization.

To ensure reliability, steps were taken to confirm that the survey instrument used by the ACFE did not contain inconsistencies. It may be appropriate to take a random sample of ACFE questionnaires and conduct extensive interviews with the respondents concerning the subjective parts of their responses. If the results show that respondents provided similar feedback then the likelihood of inconsistency errors would be low. This procedure would serve as a basis for suggesting that the instrument is reliable.

In summary, consistent with prior GST research, the present study used archival data. Participant responses associated with education level, prior convictions, and past employment history were used to determine strain scores. This approach was consistent with previous GST studies that used archival data to associate survey or interview responses with strain indicators (Ganem, 2010; Hay & Meldrum, 2010; Langton & Piquero, 2007). Similarly, participant responses contained within archival data have been used in prior studies to create proxy variables representing negative emotionality (Langton & Piquero, 2007). In this study, three motivational factors were used as proxy variables for negative emotionality.

Data Analysis Plan

Data for this study was analyzed using the SPSS software package. The data was supplied in Microsoft Excel format by a representative of the IFP, and was then imported into SPSS. Each record within the ACFE database represented one occupational fraud offense. Records were searched for missing data to ensure that all records contained the values necessary to compute strain scores, and motivational reasons, for each variable.

Data Analysis Plan: Research Question 1

The purpose of this quantitative, cross-sectional study using secondary data was to examine if and to what extent there is a relationship between strain and occupational fraud in the context of GST. Specifically, mean strain scores were compared between (a) asset misappropriation offenses, (b) corruption offenses, and (c) fraudulent financial statement offenses. Additionally, if there was and to what extent there was a relationship between strain and (a) asset misappropriation, (b) corruption, and (c) fraudulent financial statements was analyzed. To address this purpose, three research questions were developed. Research Question 1 asked the following question: Is there a difference in strain scores for asset misappropriation fraud offenses, corruption fraud offenses, and fraudulent financial statement offenses? To address this research question, the following hypothesis was tested.

$H1_0$: The mean strain score for asset misappropriation offenses is equal to the mean strain score for corruption offenses which is also equal to the mean strain score for fraudulent financial statement offenses.

$H1_A$: The mean strain score for asset misappropriation offenses is not equal to the mean strain score for corruption offenses which is also not equal to the mean strain score for fraudulent financial statement offenses.

There are two statistical tests that were used to test this hypothesis. First, a series of nominal regressions were performed. The first nominal regression used fraudulent financial statements as the reference category. As such, the output reported whether or not the mean strain scores for fraudulent financial statements were significantly different than the mean strain scores for asset misappropriation and corruption frauds. The nominal regression test was run a second time such that the reference category was changed to asset misappropriation. This second test allowed for output that reported whether or not the mean strain scores for asset misappropriation were significantly different from the mean strains scores associated with corruption and financial statement frauds. Following the nominal regression tests a Pearson Correlation test was run. The output of the Pearson Correlation test reported 2-tailed significance at the .05 level. Each of the three types of occupational frauds were tested in relation to each of the other types of occupational frauds. Specifically, correlations were determined analyzing asset misappropriations to corruption and also to fraudulent financial statements. Correlations were determined analyzing corruption with asset misappropriations and fraudulent financial statements. Lastly, correlations were determined analyzing fraudulent financial statements with asset misappropriations and corruption. The results indicated significance, where present, as well as directionality.

Data Analysis Plan: Research Question 2

Research Question 2 asked the following question: Is there a significant relationship between strain scores and asset misappropriation fraud offenses, corruption fraud offenses, and fraudulent financial statement offenses? To address this research question, three hypotheses were tested.

$H2_0$: R(x,y) = 0; where x = strain score and y = number of asset misappropriation crimes.

$H2_A$: R(x,y) ≠ 0; where x = strain score and y = number of asset misappropriation crimes.

$H3_0$: R(x,y) = 0; where x = strain score and y = number of corruption crimes.

$H3_A$: R(x,y) ≠ 0; where x = strain score and y = number of corruption crimes.

$H4_0$: R(x,y) = 0; where x = strain score and y = number of fraudulent financial statement crimes.

$H4_A$: R(x,y) ≠ 0; where x = strain score and y = number of fraudulent financial statement crimes.

A series of logistic regression tests were performed to test these hypotheses. First, a logistic regression was run to test for significance and directionality between the independent variable of strain score and the dependent variable of asset misappropriation. A second logistic regression test was performed to test for significance and directionality between strain scores and corruption. Lastly, a logistic regression test was performed to test for significance and directionality between strain scores and fraudulent financial statements.

Following the series of logistic regressions in which strain scores were analyzed in association with each type of occupation fraud, a series of logistic regression tests were performed to test for significance amongst the independent variable of strain score and three different types of fraud motivation. Specifically a logistic regression test was performed analyzing strain scores and financial motivation. Secondly, a logistic regression test was performed analyzing strain scores and personal motivation. Lastly, a logistic regression test was performed analyzing strain scores and work motivation. Each of these motivations was coded to serve as a proxy for the influencing factor of emotionality.

Data Analysis Plan: Research Question 3

Research Question 3 asked the following question: Is there a statistically significant correlation between fraud motivation and asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses? To address this research question, nine hypotheses were tested.

$H5_0$: The correlation between personal motivation and asset misappropriation offenses is not statistically significant.

$H5_A$: The correlation between personal motivation and asset misappropriation offenses is statistically significant.

$H6_0$: The correlation between personal motivation and corruption offenses is not statistically significant.

$H6_A$: The correlation between personal motivation and corruption offenses is statistically significant.

$H7_0$: The correlation between personal motivation and fraudulent financial statement offenses is not statistically significant.

$H7_A$: The correlation between personal motivation and fraudulent financial statement offenses is statistically significant.

$H8_0$: The correlation between financial motivation and asset misappropriation offenses is not statistically significant.

$H8_A$: The correlation between financial motivation and asset misappropriation offenses is statistically significant.

$H9_0$: The correlation between financial motivation and corruption offenses is not statistically significant.

$H9_A$: The correlation between financial motivation and corruption offenses is statistically significant.

$H10_0$: The correlation between financial motivation and fraudulent financial statement offenses is not statistically significant.

$H10_A$: The correlation between financial motivation and fraudulent financial statement offenses is statistically significant.

$H11_0$: The correlation between work-related motivation and asset misappropriation offenses is not statistically significant.

$H11_A$: The correlation between work-related motivation and asset misappropriation offenses is statistically significant.

$H12_0$: The correlation between work-related motivation and corruption offenses is not statistically significant.

$H12_A$: The correlation between work-related motivation and corruption offenses is statistically significant.

$H13_0$: The correlation between work-related motivation and fraudulent financial statement offenses is not statistically significant.

$H13_A$: The correlation between work-related motivation and fraudulent financial statement offenses is statistically significant.

To address these hypotheses a series of Pearson Correlation tests were run. The output of the Pearson Correlation test reported 2-tailed significance at the .05 level. Each of the three types of fraud motivation were tested in relation to each of the three types of occupational frauds. Specifically, correlations were determined analyzing personal motivation in relation to asset misappropriation frauds. Secondly, correlations were determined analyzing personal motivation in relation corruption offenses. Lastly, related to personal motivation, correlations were determined analyzing personal motivation to fraudulent financial statement offenses. As it relates to financial motivation, correlations were determined analyzing financial motivation in relation to asset misappropriation frauds. Secondly, correlations were determined analyzing financial motivation in relation corruption offenses. Lastly, related to financial motivation, correlations were determined analyzing financial motivation to fraudulent financial statement offenses. As it relates to work-related motivation, correlations were determined analyzing work-related motivation in relation to asset misappropriation frauds. Secondly, correlations were determined analyzing work-related motivation in relation corruption offenses. Lastly, related to

work-related motivation, correlations were determined analyzing work-related motivation to fraudulent financial statement offenses.

General Strain Theory and Data Analysis

Testing hypotheses is a necessary element of cross-sectional research. Cross-sectional research is grounded in theory. Theory serves as an explanation of expected behaviors or results. Expected explanations in the form of theory can be restated with if-then statements. For example, GST suggests that if strain of a certain type and magnitude is present then negative emotional responses will follow. If negative emotional responses happen then there is criminal behavior. The if-then elements isolate variable components. GST suggests three different variable components. They include strain, negative emotionality, and delinquent response. These three elements became apparent when evaluating in the context of if-then statements. At the center of any quantitative research effort is analysis. Data must be analyzed in relation to the theory that the study is grounded upon. If GST is being tested, then the data is analyzed to determine if there is evidence to support the claim that strain leads to negative emotional response. Additionally, the data is analyzed to see if negative emotional response triggers delinquent behavior. Hypotheses serve as the link between theory and analysis. For example, GST suggests that strain creates a negative emotional response. Therefore, the null hypothesis would state that strain does cause negative emotional response.

The analysis of the data utilizes statistics in a way that tests the relationship between strain and negative emotionality. Nominal regression tests generate output in the form of directionality and significance. The significance element is used to determine

if the null hypothesis should be rejected. If the statistical analysis reveals that significance is present between the two variables then the null hypothesis is rejected. Once the null hypothesis is rejected the alternative is accepted. In the case of the Langton and Piquero (2007) study it was determined that a positive and statistically significant correlation existed between strain and financial motives. More precisely, their results showed significance with the p value < .01. Stated differently, the researchers found evidence to reject the null hypothesis at a 99% confidence interval. The researchers conclude that they are 99% confident that the correlation between strain and financial motives did not happen by accident. Therefore, the analysis is used to show empirical support for GST.

In the Langton and Piquero (2007) study, financial motive was a variable used to represent negative emotionality. The researchers suggested that each of the white-collar offenses in their sample were derived from some sort of negative emotional state. The negative emotional states were coded as being either personal, financial, or business related. Therefore, Langton and Piquero would conclude that there is a positive and significant relationship between strain and financial motives. This finding would then show support for that particular element of GST. Langton and Piquero also found a positive and significant relationship between strain and false claims. The researchers also showed test results in which strain was not either positively or significantly related to other offenses. The ultimate conclusion for these researchers was that there was support for GST but not exclusive support for GST. These findings create additional research opportunities. Future research projects may wish to analyze what makes false claims

different from the other types of white-collar offending as it relates to GST. Or, future researchers may wish to analyze what makes financial motive different than personal motive in relation to GST.

Analytical plans describe the specific statistical tests that are used to test hypotheses that reflect theory. Theory is linked to results through analysis. Analysis is conducted using statistics to test hypotheses. Using the Langton and Piquero (2007) study, the linkage between theory and results can be seen. The researchers used logistic regression as their analytical method. This was due to the type of data they were analyzing. Langton and Piquero coded their motivation variable dichotomously. They also coded their dependent variables dichotomously. Logistic regression analysis is often used when data is dichotomous. Not all research uses dichotomous data. Other factors and considerations are used to determine which statistical test to employ. For example, the purpose of the research is considered. Purpose is expressed as either searching for relationships between variables or searching for differences amongst variables (Martin & Bridgmon, 2012). Additional considerations include (a) the number of variables being analyzed, (b) how the measurements are scaled, (c) how many different relationships are being analyzed, and (d) how well underlying assumptions are satisfied (Martin & Bridgmon, 2012). Depending upon the results of these considerations various statistical may be executed. Commonly, analysis of variance tests are used (Martin & Bridgmon, 2012). Depending upon the considerations correlation tests may be used as well (Martin & Bridgmon, 2012). Many different types of analyses were used for the studies included in the annotated bibliography section. Some of those types included (a) logistic

regression, (b) trajectory modeling and multilevel multinomial regression, (c) random-intercept regression, (d) structural equation modeling, (e) negative binomial regression, (f) robust regression models, and (g) mean-difference tests. Researchers consider theory, hypotheses, data type and sample size when determining which testing methods to use. Nonetheless, all testing is done to render decisions related to hypotheses which in turn relate to theory. As such, the analytical plan works in coordination with research and data in order to produce results. Results, however, are viewed not only based upon their statistical findings. Additionally, they are evaluated based upon their validity.

Threats to Validity

There are different forms of validity as it relates to research. Two such forms include internal validity and external validity. Internal validity addresses the actual tests and analyses that were performed (Trochim, 2000). Stated differently, internal validity addresses whether or not the tests measured the variables they were designed to measure (Trochim, 2000). External validity addresses how the results can be applied (Creswell, 2009). More directly, the issue of generalizability of results surfaces in the context of external validity. Whether or not findings can be generalized to the greater population is what external validity addresses.

Researchers account for internal validity through the use of their specific statistical procedures and tests. As previously mentioned, there are many different types of tests that researchers can use. The selection of which test, or tests, to use determines how internally valid the results are. In other words, researchers need to select appropriate testing methods so as to ensure that what was designed to be tested was in actuality

tested. Failure to test properly leads to results that are not internally valid. As such, those results may not be accepted as new knowledge by the scientific community.

Researchers account for external validity through their sample selection methods (Trochim, 2000). In order for results of analysis, of a sample, to be generalized back to the population, the sample needs to be randomly selected (Trochim, 2000). Absent of random selection results have limited generalizability. There is a natural connectedness between data selection and the ability to generalize results. Recall that much of the cross-sectional research in the field of criminology and specifically about GST relies upon archival data. In many instances archival data was collected through methods that did not require random sampling and selection. As such, the results of those studies cannot be generalized back to the population. Lack of generalizability does not negate the merit of the research. Rather it limits how the findings are interpreted. For example, in the Langton and Piquero study, the data represented convicted white-collar offenders. The data for their study did not come from a random selection process. This fact does not negate the results of their study. It just suggests that it cannot be stated that all people would respond to strain the same way that the select sample did.

Cross-sectional research is grounded in theory. In some cases data are collected from archival sources. The data are analyzed by testing hypotheses. The specific tests that are used address issues of internal validity. The representativeness of the data addresses issues of external validity. How the results are understood and used is a reflection of the design of study. The design of the study encompasses theory, data, hypotheses, analytical plans and issues of validity.

Content validity refers to the extent to which the instrument measures the phenomenon being studied (Frankfort-Nachmias & Nachmias, 2008). The two types of content validity are face validity and sampling validity. Face validity addresses the appropriateness of the instrument and sampling validity determines whether a given population has been adequately sampled by the instrument (Frankfort-Nachmias & Nachmias, 2008). To ensure face validity, the research department of the ACFE will be contacted to determine what steps were taken to address content validity for their questionnaire. Notably, the ACFE questionnaire has been in use since 1996, and the biennial publication in which results are reported has been cited in numerous peer-reviewed articles.

With regard to sampling validity, approximately 5% of the occupational fraud cases contained within the ACFE database relate to financial statement fraud. Even though the frequency of cases related to fraudulent financial statements is comparatively low, the volume of cases is adequate enough to suggest that the present study possessed sampling validity. The frequencies of each fraud type were reported in the results to further demonstrate sampling validity.

Empirical validity addresses the relationship between the measuring instrument and the measured outcomes (Frankfort-Nachmias & Nachmias, 2008). A study possess empirical validity when the instrument being used produces output that meets the expectations of the knowledge group, based on comparisons to other external data sources. This is referred to as predictive validity (Frankfort-Nachmias & Nachmias, 2008). In this study, measurements were made based on data collected from the ACFE.

Previous studies have used similar archival methods and sources when reporting on GST, which suggests the intended measurement outcomes are accurate.

Construct validity is concerned with testing the measuring instrument against the theoretical framework related to the study (Frankfort-Nachmias & Nachmias, 2008). Since this study is based on the general idea of strain theory, and more specifically on the idea of GST, it is rooted in a solid theoretical foundation. Many researchers over the years have designed studies to test strain theories. The ACFE data has also been used in various studies dealing with fraud, criminology, and forensic accounting. Thus, a strong connection exists between the measuring instruments and the theoretical framework, demonstrating that this study possesses construct validity.

Ethical Procedures

This study was approved by the Walden University Institutional Review Board (IRB). The IRB approval number for this study is 12-01-14-0167215. Because this study used archival data, the IRB application addressed (a) project information, (b) general description of the proposed research, (c) community research stakeholders and partners, (d) potential risks and benefits, (e) data integrity and confidentiality, and (f) potential conflicts of interest. Two community stakeholders related to this research are the ACFE and the IFP. These organizations represent the fraud research and fraud practitioner communities, respectively. The fraud research community is interested in matters of WCC and fraud, and the fraud practitioner community is interested in matters related to fraud detection and prevention.

The Walden University IRB application lists 10 specific considerations pertaining to potential risks and benefits: unintended disclosure of confidential information, psychological stress, attention to personal information that is irrelevant to the proposed study, unwanted solicitation, unwanted intrusion of privacy, social or economic loss, perceived coercion, misunderstanding as a result of experimental deception, minor negative effects to participants or stakeholders, and major negative effects to participants or stakeholders. Of these considerations, none are applicable to this study except the risk of unintended disclosure of confidential information. The risk associated with this issue is minimal, yet requires specific procedures to ensure that data is handled in a matter that protects the ACFE, the IFP, and the survey participants. The data was provided by the IFP in electronic form as a Microsoft Excel file. The file was saved to my local hard and to an external hard drive for back-up purposes. The researcher has measures in place that limit access to both hard drive locations. Furthermore, the researcher did not use any cloud computing or other remote tools to store the data. These steps minimized the risk of data being accessed or disclosed in any way that is not authorized by the ACFE or the IFP.

The data in this study was received by the IFP with full permission to use and report results based on analysis of the data. Approval by the IFP was granted to the researcher on Saturday, November 9, 2013. A copy of this approval can be found in the appendix. This approval followed a formal application, a written project proposal, and an in-person presentation to the IFP Board of Directors and general members. The IFP, upon granting access to the ACFE data, identified several requirements that must be met

by the researcher. The researcher must make substantial progress on their research within six months of receiving the data. If the database is added to in any way, the researcher agrees to provide the IFP with any additional observations and supporting documentation. The researcher is limited to using the data solely for the research project described in the initial application and project proposal. The researcher must not share the database with anyone not explicitly included in the research proposal. The researcher must execute a nondisclosure agreement. The research project, upon completion, must be made available for publication on the IFP website. The IFP organization must be acknowledged in published works resulting from the use of their data. All of the requirements specified by the IFP have been met to date. On June 9, 2013, the Chair of the Board of Directors for the IFP confirmed via e-mail that the progress made on this research project was acceptable as it pertains to the six-month progress requirement.

The data used in this research project does not identify the fraud perpetrators. Survey responses were completed by individuals who led the fraud investigations and the names or other identifiers of the perpetrators were not collected. Accordingly, this research project does not present any risk related to confidentiality of the participants.

Summary

This quantitative, cross-sectional study used archival data from the ACFE that is managed by the IFP. The records contain information about specific occupational frauds and their perpetrators. Data from this source allows for the determination of strain scores for each occupational fraud offense, which is classified as either an asset misappropriation offense, corruption offense, or fraudulent financial statement offense.

Logistic regression was used to determine significance of relationships between strain score and types of occupational fraud. The number of participants in the sample is 5,672. A sample size of 5,672 equates to a power of 1.00 when assuming an effect size of .30 and $\alpha = .05$. Multiple power analyses were run allowing for changes in the effect size and α value. The resulting power was always 1.00 because of the large sample size. The results of this study compliment past research efforts grounded in the GST framework, address gaps in the literature pertaining to GST and WCC, and add to the body of knowledge in at least two primary ways: the results address similarities and differences in strain scores between various types of occupational fraud and address the connection between strain and deviant behavior.

Common within the discipline of criminology is cross-sectional research design. Also common is the use of existing data. Quantitative research should be grounded in theory. Criminology is a discipline devoted to the creation and understanding of theories related to crime causation. GST is a concept accepted and consistently tested within the field of criminology. A gap in the literature exists, however, related to understanding the implications of GST in the context of occupational fraud. Therefore a dissertation designed to address this gap is appropriate.

A study focused on GST with specific interest on occupational fraud was designed. Utilizing existing data from the Institute of Fraud Prevention (IFP) a strain variable was created. The strain variable represents a composite strain score resultant from factors related to net worth, educational success, and other socioeconomic factors. The IFP data contains over 4,000 observations of occupational frauds. Those frauds are

categorized three ways. Those ways include (a) asset misappropriation, (b) corruption, and (c) fraudulent financial statements. Additionally, three dummy variables will be constructed to represent fraud motivation. Fraud motivation will serve as a proxy for negative emotionality. Therefore, utilizing existing data from the IFP, a study was completed that tests the relationship between strain, motivation, and fraudulent responses. The results of this study address a gap in the literature and lend to the understanding of GST in relation to WCC. The results of this dissertation also highlight similarities and dissimilarities between the three types of occupational fraud. As such, the results of this dissertation begin to frame possible future research ideas.

Chapter 4: Results

The purpose of this quantitative, cross-sectional, study using secondary data was to examine if and to what extent there was a relationship between strain and occupational fraud in the context of GST. Specifically, this study compared mean strain scores between (a) asset misappropriation offenses, (b) corruption offenses, and (c) fraudulent financial statement offenses. Additionally, this study analyzed if there was and to what extent there was a relationship between strain and (a) asset misappropriation, (b) corruption, and (c) fraudulent financial statements. Specific strains were measured to generate strain scores related to occupational fraud offenses; those scores served as an independent variable. Additionally, fraud motives, which were classified as being (a) personal, (b) financial, or (c) work-related, served as another independent variable. The dependent variables in this study were the three types of occupational fraud offenses listed above. To address this purpose, three research questions were developed. The first research question asked the following question: Is there a difference in strain scores for asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses? To address this research question, the following hypothesis was tested.

> $H1_0$: The mean strain score for asset misappropriation offenses is equal to the mean strain score for corruption offenses which is also equal to the mean strain score for fraudulent financial statement offenses.

$H1_A$: The mean strain score for asset misappropriation offenses is not equal to the mean strain score for corruption offenses which is also not equal to the mean strain score for fraudulent financial statement offenses.

The second research question asked: Is there a significant relationship between strain scores and asset misappropriation fraud offenses, corruption fraud offenses, and fraudulent financial statement offenses? To address this research question, three hypotheses were tested.

$H2_0$: $R(x,y) = 0$; where x = strain score and y = number of asset misappropriation crimes.

$H2_A$: $R(x,y) \neq 0$; where x = strain score and y = number of asset misappropriation crimes.

$H3_0$: $R(x,y) = 0$; where x = strain score and y = number of corruption crimes.

$H3_A$: $R(x,y) \neq 0$; where x = strain score and y = number of corruption crimes.

$H4_0$: $R(x,y) = 0$; where x = strain score and y = number of fraudulent financial statement crimes.

$H4_A$: $R(x,y) \neq 0$; where x = strain score and y = number of fraudulent financial statement crimes.

The third research question asked: Is there a statistically significant correlation between fraud motivation and asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses? To address this research question, nine hypotheses were tested.

$H5_0$: The correlation between personal motivation and asset misappropriation offenses is not statistically significant.

$H5_A$: The correlation between personal motivation and asset misappropriation offenses is statistically significant.

$H6_0$: The correlation between personal motivation and corruption offenses is not statistically significant.

$H6_A$: The correlation between personal motivation and corruption offenses is statistically significant.

$H7_0$: The correlation between personal motivation and fraudulent financial statement offenses is not statistically significant.

$H7_A$: The correlation between personal motivation and fraudulent financial statement offenses is statistically significant.

$H8_0$: The correlation between financial motivation and asset misappropriation offenses is not statistically significant.

$H8_A$: The correlation between financial motivation and asset misappropriation offenses is statistically significant.

$H9_0$: The correlation between financial motivation and corruption offenses is not statistically significant.

$H9_A$: The correlation between financial motivation and corruption offenses is statistically significant.

$H10_0$: The correlation between financial motivation and fraudulent financial statement offenses is not statistically significant.

$H10_A$: The correlation between financial motivation and fraudulent financial statement offenses is statistically significant.

$H11_0$: The correlation between work-related motivation and asset misappropriation offenses is not statistically significant.

$H11_A$: The correlation between work-related motivation and asset misappropriation offenses is statistically significant.

$H12_0$: The correlation between work-related motivation and corruption offenses is not statistically significant.

$H12_A$: The correlation between work-related motivation and corruption offenses is statistically significant.

$H13_0$: The correlation between work-related motivation and fraudulent financial statement offenses is not statistically significant.

$H13_A$: The correlation between work-related motivation and fraudulent financial statement offenses is statistically significant.

This chapter presents the results of the quantitative analysis that explored the relationship between strain, fraud motivation, and occupational fraud offenses. The discussion first addresses elements related to data collection. The time frame for data collection, as well as the baseline descriptive and demographic characteristics, are presented. Additionally, the data collection discussion addresses how proportional the sample was to the population at large. Following the discussion related to data collection is a detailed presentation addressing the results of the study. Included in the results section are descriptive statistics that characterize the sample. The results of the statistical

analyses are presented and organized by research question. Exact statistics, confidence intervals, and additional statistical tests of hypotheses that emerged from the original hypotheses are stated. Tables have been included to further illustrate the results. This chapter concludes with a summary that highlights key points related to the results as well as a transition into Chapter 5.

Data Collection

The data for this study came from an online survey that was administered by the ACFE. The specific time frame for data collection was January 2003 through December 2012. The survey respondents were CFEs who had first account knowledge of an occupational fraud case. The ACFE administers their occupational fraud survey every 2 years. For each 2-year window a CFE was asked to complete the survey for the single largest occupational fraud case investigated. Additionally, four criteria had to be met in order for the survey response to be included in the database. Those criteria included (a) the case must have involved occupational fraud, (b) the investigation must have occurred between January of Year 1 and December of Year 2 of the two year window for that survey, (c) the investigation must have been completed before the submission of the survey response, and (d) the CFE must have been reasonably sure who the perpetrators of the offense were. Table 1 provides a summary of survey response results for each of the two year windows included in the database used for the present study.

Table 1

ACFE Survey Response Data

Data collection time frame	Number of CFE's Eligible to Participate in Survey	Number of Surveys Submitted
January 2011 - December 2012	34,275	1,428
January 2009 - December 2010	22,927	1,843
January 2007 - December 2008	16,606	1,117
January 2005 - December 2006	11,112	1,134
January 2003 - December 2004	Unknown	508
Total	84,920	6,030

The total number of surveys submitted between January 2003 and December 2012 totaled 6,030. Some of the cases represented in the ACFE database contained incomplete data and were removed from the database. The total number of cases supplied in the database, by the IFP, for this study included 5,672 cases. The response variables in this study are specific occupational fraud offenses. Those offenses include (a) asset misappropriation, (b) corruption, and (c) fraudulent financial statements. The database was filtered to include cases in which only one fraud type was identified. If any case was identified as having more than one occupational fraud type it was filtered out. Additionally, if any given case was not directly coded as having at least one of the occupational fraud types it was excluded. Table 2 provides a summary of occupational fraud cases by type.

Table 2

Frequency of Cases by Occupational Fraud Type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Asset_Misapprop.	2566	80.8	87.1	87.1
	Corruption	310	9.8	10.5	97.7
	Fin_Stmt_Fraud	69	2.2	2.3	100.0
	Total	2945	92.7	100.0	
Missing	System	232	7.3		
Total		3177	100.0		

Gender was used in this study as a control variable. Table 3 presents a summary of case frequency by gender.

Table 3

Frequency of Cases by Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	1721	54.2	59.1	59.1
	Female	1189	37.4	40.9	100.0
	Total	2910	91.6	100.0	
Missing	System	267	8.4		
Total		3177	100.0		

One independent variable, labeled as the strain score, in this study represented the measure of strain. Calculated strain scores ranged from 0 to 15. The higher the strain

score the higher the perceived level of strain. Table 4 provides a summary of cases by strain score.

Table 4

Frequency of Cases by Strain Score

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	122	3.8	3.8	3.8
	1.00	169	5.3	5.3	9.2
	2.00	529	16.7	16.7	25.8
	3.00	728	22.9	22.9	48.7
	4.00	613	19.3	19.3	68.0
	5.00	442	13.9	13.9	81.9
	6.00	264	8.3	8.3	90.2
	7.00	158	5.0	5.0	95.2
	8.00	82	2.6	2.6	97.8
	9.00	39	1.2	1.2	99.0
	10.00	16	.5	.5	99.5
	11.00	7	.2	.2	99.7
	12.00	4	.1	.1	99.9
	13.00	2	.1	.1	99.9
	14.00	1	.0	.0	100.0
	15.00	1	.0	.0	100.0
	Total	3177	100.0	100.0	

A second independent variable in this study represented fraud motivation. Fraud motivation was dichotomously coded with a score of 1 representing the presence of the motive and a score of 0 representing no presence of the motive. Table 5 provides a summary of case frequency for personal motivation to commit occupational fraud.

Table 5

Case Frequency of Cases Coded with Personal Motivation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1067	33.6	33.6	33.6
	1.00	2110	66.4	66.4	100.0
	Total	3177	100.0	100.0	

Table 6 provides a summary of case frequencies for financial motivation to commit occupational fraud.

Table 6

Case Frequency of Cases Coded with Financial Motivation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	2322	73.1	73.1	73.1
	1.00	855	26.9	26.9	100.0
	Total	3177	100.0	100.0	

Table 7 provides a summary of case frequencies for work-related motivation to commit occupational fraud.

Table 7

Case Frequency of Cases Coded With Work-Related Motivation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	2305	72.6	72.6	72.6
	1.00	872	27.4	27.4	100.0
	Total	3177	100.0	100.0	

This study addressed the topic of occupational fraud. Due to the hidden nature of occupational fraud crimes it is difficult to know precisely the total population of cases, classified by fraud type, belonging in this group. Reporting on the representativeness of the sample in relation to the population is not possible. The data used in this study was filtered as relationships between strain scores and occupational fraud type were aligned. In that sense the sample data is a subset of the total ACFE database. Table 8 provides a summary comparing the percentage of cases by fraud type between the sample and the complete 2012 ACFE database. This table shows that the relative distribution, by occupational fraud type, from the sample is representative of the total ACFE database used in the 2012 Report to the Nations.

Table 8

Data Comparison – Sample to Population

Occupational Fraud Type	Percent of Total Cases: 2012 Report to the Nations Report	Percent of Total Cases: Sample Used in Study
Asset Misappropriation	87%	87%
Corruption	33%	11%
Fraudulent Fin. Statements	8%	2%
Total*	128%	100%

Note. The RTN 2012 total exceeds 100% because several cases were aligned to more than one fraud type.

Table 9 provides a summary comparing the percentage of cases by gender between the sample and the complete 2012 ACFE database. Table 9 shows that the sample data contains more cases involving female perpetrators as a percentage of the total than does the ACFE full database. This result suggests that fewer women perpetrators were aligned with multiple types of occupational frauds within one case. It was more likely that if a case was coded as having a female perpetrator only one type of fraud was associated. Further research would need to be done to analyze fraud scheme multiplicity by gender.

Table 9

Comparison by Gender

Gender	Percent of Total Cases: 2012 Report to the Nations Report	Percent of Total Cases: Sample Used in Study
Male	67%	59%
Female	33%	41%
Total	100%	100%

Results

Three research questions were addressed in this study. The first research question asked: Is there a difference in strain scores for asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses? For this research question nominal regression analysis was conducted. The second research question asked: Is there a significant, positive relationship between strain scores and asset misappropriation fraud offenses, corruption fraud offenses, and fraudulent financial statement offenses? For this research question logistic regression was conducted. The third research question asked: Is there a statistically significant correlation between fraud motivation and asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses? To address this research question correlation analysis was conducted.

Research Question 1

The first research question asked the following question: Is there a difference in strain scores for asset misappropriation fraud offenses, corruption offenses, and

fraudulent financial statement offenses? To address this research question, the following hypothesis was tested.

$H1_0$: The mean strain score for asset misappropriation offenses is equal to the mean strain score for corruption offenses which is also equal to the mean strain score for fraudulent financial statement offenses.

$H1_A$: The mean strain score for asset misappropriation offenses is not equal to the mean strain score for corruption offenses which is also not equal to the mean strain score for fraudulent financial statement offenses.

A nominal regression, in which the reference category was financial statement fraud, was conducted using strain score as the independent variable. Using financial statement fraud as the reference category allowed for an analysis of the strain scores between financial statement fraud offenses and each of the other two types of occupational fraud offenses. The nominal regression results show that the difference in strain scores between financial statement fraud cases and asset misappropriation cases is significant. This result is evident based on a p-value .001, which is less than .05. With a p-value less than .05 the null hypothesis is rejected. The null hypothesis stated that the strains scores between financial statement fraud and asset misappropriation would be equal. The results show that the strain scores between these two variables are not equal. Additionally, the B value for strain score as related to asset misappropriation was .277. This result show that with an increase in strain score by 1.0 the multinomial log-odds for asset misappropriation to financial statement fraud would be expected to increase by .277 units.

The nominal regression results show that the difference in strain scores between financial statement fraud cases and corruption cases is significant. This result is evident based on a p-value .003, which is less than .05. With a p-value less than .05 the null hypothesis is rejected. The null hypothesis stated that the strains scores between financial statement fraud and corruption would be equal. The results show that the strain scores between these two variables are not equal. Additionally, the B value for strain score as related to asset misappropriation was .267. This result show that with an increase in strain score by 1.0 the multinomial log-odds for corruption to financial statement fraud would be expected to increase by .267 units. The case processing summary for this analysis is displayed in Table 10.

Table 10

Nominal Regression: Case Processing Summary Mean Strain Differences

		N	Marginal Percentage
Fraud_Type	Asset_Misappropriation	2,425	87.1%
	Corruption	294	10.6%
	Fin_Stmt_Fraud	64	2.3%
Gender	Male	1641	59.0%
	Female	1142	41.0%
Valid		2783	100.0%
Missing		394	
Total		3177	
Subpopulation			

a. The dependent variable has only one value observed in 11 (36.7%) subpopulations.

Table 11 displays the results of the nominal regression using financial statement fraud as the reference category.

Table 11

Parameter Estimates Comparing Mean Strain Scores

Fraud_Type[a]		B	Std. Error	Wald	df	Sig.
Asset_Misapprop.	Intercept	4.135	.505	67.035	1	.000
	Strain_Score	.277	.086	10.519	1	.001
	[Gender=.00]	-1.954	.432	20.429	1	.000
	[Gender=1.00]		.	.	0	.
Corruption	Intercept	.788	.546	2.083	1	.149
	Strain_Score	.267	.090	8.763	1	.003
	[Gender=.00]	-.209	.465	.201	1	.654
	[Gender=1.00]		.	.	0	.

a. The reference category is: Fin_Stmt_Fraud.
b. This parameter is set to zero because it is redundant.

A nominal regression was run a second time allowing for the reference category to be changed from financial statement fraud to asset misappropriation. This change allowed for an analysis of strain scores between asset misappropriation offenses and corruption offenses. The nominal regression results show that the difference in strain scores between asset misappropriation fraud cases and corruption cases is not significant. This result is evident based on a p-value .769, which is greater than .05. With a p-value greater than .05 the null hypothesis is not rejected. The null hypothesis stated that the strains scores between asset misappropriation and corruption would be equal. The results from this analysis are displayed in Table 12.

Table 12

Parameter Estimates Comparing Mean Strain Scores

Fraud_Type[a]		B	Std. Error	Wald	df	Sig.
Corruption	Intercept	-3.347	.224	223.387	1	.000
	Strain_Score	-.010	.034	.086	1	.769
	[Gender=.00]	1.745	.181	92.445	1	.000
	[Gender=1.00]		.	.	0	.
Fin_Stmt_Fraud	Intercept	-4.135	.505	67.035	1	.000
	Strain_Score	-.277	.086	10.519	1	.001
	[Gender=.00]	1.954	.432	20.429	1	.000
	[Gender=1.00]		.	.	0	.

a. The reference category is: Asset_Misappropriation.
b. This parameter is set to zero because it is redundant.

Research Question 2

The second research question asked the following question: Is there a significant relationship between strain scores and asset misappropriation fraud offenses, corruption fraud offenses, and fraudulent financial statement offenses? To address this research question, three hypotheses were be tested.

$H2_0$: R(x,y) = 0; where x = strain score and y = number of asset misappropriation crimes.

$H2_A$: R(x,y) ≠ 0; where x = strain score and y = number of asset misappropriation crimes.

$H3_0$: R(x,y) = 0; where x = strain score and y = number of corruption crimes.

$H3_A$: R(x,y) ≠ 0; where x = strain score and y = number of corruption crimes.

$H4_0$: R(x,y) = 0; where x = strain score and y = number of fraudulent financial statement crimes.

$H4_A$: R(x,y) ≠ 0; where x = strain score and y = number of fraudulent financial statement crimes.

Logistic regression was used to test each of these hypotheses. Hypothesis 2 analyzed the relationship between strain scores and asset misappropriation offenses. Results show a p-value of .000 for this model and an Exp(B) value of 1.118. A p-value of less than .05 indicates significance and an Exp(B) value greater than 1.0 shows a positive relationship between the variables. Based on these results it can be concluded that the null hypothesis is rejected and that the relationship between strain and asset misappropriation crimes is significant. Table 13 show the case processing summary associated with this test.

Table 13

Case Processing Summary: Asset Misappropriation Cases

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2910	91.6
	Missing Cases	267	8.4
	Total	3177	100.0
Unselected Cases		0	.0
Total		3177	100.0

Table 14 shows logistic regression results for the model analyzing asset misappropriation offenses in response to strain scores.

Table 14

Logistic Regression: Asset Misappropriations in Response to Strain Scores

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	Strain	.111	.029	14.326	1	.000	1.118	1.055	1.184
	Gender1	-1.241	.124	99.400	1	.000	.289	.227	.369
	Constant	2.044	.160	163.859	1	.000	7.723		

a. Variable(s) entered on step 1: Strain_Score, Gender.

Hypothesis 3 analyzed the relationship between strain scores and corruption offenses. Results show a p-value of .857 for this model and an Exp(B) value of 1.006. A p-value greater than .05 indicates that the model is not significant and an Exp(B) value greater than 1.0 shows a positive relationship between the variables. Based on these results the decision is to fail to reject the null hypothesis. It is concluded that the

relationship between strain and corruption is not significant. Table 15 show the case processing summary associated with this test.

Table 15

Case Processing Summary: Corruption Cases

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2910	91.6
	Missing Cases	267	8.4
	Total	3177	100.0
Unselected Cases		0	.0
Total		3177	100.0

a. If weight is in effect, see classification table for the total number of cases.

Table 16 shows logistic regression results for a model analyzing corruption offenses in response to strain scores.

Table 16

Logistic Regression: Corruptions in Response to Strain Scores

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	ExpB	Lower	Upper
St.1[a]	Strain	.006	.034	.033	1	.857	1.006	.941	1.075
	Gender1	1.702	.181	88.259	1	.000	5.484	3.845	7.821
	Constant	-3.465	.222	242.907	1	.000	.031		

a. Variable(s) entered on step 1: Strain_Score, Gender.

Hypothesis 4 analyzed the relationship between strain scores and financial statement fraud offenses. Results show a p-value of .002 for this model and an Exp(B)

value of .767. A p-value less than .05 indicates that the model is significant and an Exp(B) value less than 1.0 shows a negative relationship between the variables. Based on these results the null hypothesis is rejected. It is concluded that the relationship between strain and financial statement fraud is significant. The relationship between these two variables is, however, negative. Negative directionality suggests that as strain pressures increases the response in the form of financial statement fraud was less likely. Table 17 show the case processing summary associated with this test.

Table 17

Case Processing Summary: Financial Statement Fraud Cases

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2910	91.6
	Missing Cases	267	8.4
	Total	3177	100.0
Unselected Cases		0	.0
Total		3177	100.0

a. If weight is in effect, see classification table for the total number of cases.

Table 18 shows logistic regression results for a model analyzing financial statement fraud offenses in response to strain scores.

Table 18

Logistic Regression: Fin. Stmt. Frauds in Response to Strain Scores

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	Strain	-.266	.085	9.765	1	.002	.767	.649	.906
	Gender(1)	1.814	.432	17.658	1	.000	6.137	2.633	14.305
	Constant	-4.264	.503	71.968	1	.000	.014		

a. Variable(s) entered on step 1: Strain_Score, Gender.

Research Question 3

The third research question asked the following question: Is there a statistically significant correlation between fraud motivation and asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses? To address this research question, nine hypotheses were be tested.

$H5_0$: The correlation between personal motivation and asset misappropriation offenses is not statistically significant.

$H5_A$: The correlation between personal motivation and asset misappropriation offenses is statistically significant.

$H6_0$: The correlation between personal motivation and corruption offenses is not statistically significant.

$H6_A$: The correlation between personal motivation and corruption offenses is statistically significant.

$H7_0$: The correlation between personal motivation and fraudulent financial statement offenses is not statistically significant.

$H7_A$: The correlation between personal motivation and fraudulent financial statement offenses is statistically significant.

$H8_0$: The correlation between financial motivation and asset misappropriation offenses is not statistically significant.

$H8_A$: The correlation between financial motivation and asset misappropriation offenses is statistically significant.

$H9_0$: The correlation between financial motivation and corruption offenses is not statistically significant.

$H9_A$: The correlation between financial motivation and corruption offenses is statistically significant.

$H10_0$: The correlation between financial motivation and fraudulent financial statement offenses is not statistically significant.

$H10_A$: The correlation between financial motivation and fraudulent financial statement offenses is statistically significant.

$H11_0$: The correlation between work-related motivation and asset misappropriation offenses is not statistically significant.

$H11_A$: The correlation between work-related motivation and asset misappropriation offenses is statistically significant.

$H12_0$: The correlation between work-related motivation and corruption offenses is not statistically significant.

$H12_A$: The correlation between work-related motivation and corruption offenses is statistically significant.

$H13_0$: The correlation between work-related motivation and fraudulent financial statement offenses is not statistically significant.

$H13_A$: The correlation between work-related motivation and fraudulent financial statement offenses is statistically significant.

Pearson Correlation analysis was used to test the significance of correlation between independent variables representing fraud motivation and each type of occupation fraud offense.

Hypotheses 5 through 7 analyzed the correlation between personal motivation and each of the occupational fraud types. Hypothesis 5 analyzed the correlation between personal motivation and asset misappropriation. The results show a positive relationship between the variables. The results show a significant correlation between the variables at the $\alpha = .01$ (two tailed) level. Hypothesis 6 analyzed the correlation between personal motivation and corruption. The results show a negative relationship between the variables. The results show a significant correlation between the variables at the $\alpha = .01$ (two tailed) level. Hypothesis 7 analyzed the correlation between personal motivation and financial statement fraud. The results show a negative relationship between the variables. The results show a significant correlation between the variables at the $\alpha = .01$ (two tailed) level.

Hypotheses 8 through 10 analyzed the correlation between personal motivation and each of the occupational fraud types. Hypothesis 8 analyzed the correlation between financial motivation and asset misappropriation. The results show a negative relationship between the variables. The results show a significant correlation between the variables at

the $\alpha = .01$ (two tailed) level. Hypothesis 9 analyzed the correlation between financial motivation and corruption. The results show a positive relationship between the variables. The results show a significant correlation between the variables at the $\alpha = .01$ (two tailed) level. Hypothesis 10 analyzed the correlation between financial motivation and financial statement fraud. The results show a negative relationship between the variables. The results did not show a significant correlation between the variables at the $\alpha = .01$ (two tailed) level.

Hypotheses 11 through 13 analyzed the correlation between work-related motivation and each of the occupational fraud types. Hypothesis 11 analyzed the correlation between work-related motivation and asset misappropriation. The results show a positive relationship between the variables. The results do not show a significant correlation between the variables at the $\alpha = .01$ (two tailed) level. Hypothesis 12 analyzed the correlation between work-related motivation and corruption. The results show a positive relationship between the variables. The results do not show a significant correlation between the variables at the $\alpha = .01$ (two tailed) level. Hypothesis 13 analyzed the correlation between work-related motivation and financial statement fraud. The results show a positive relationship between the variables. The results show a significant correlation between the variables at the $\alpha = .01$ (two tailed) level.

Table 19 provides a summary of the correlations results related to the analysis between motivation and each occupational fraud type.

Table 19

Correlations: Motivation and Fraud Types

		Asset_Misapprop.	Corruption_	Fin Stmt Fraud
Personal_Motivation	Pearson Correlation	.247**	-.096**	-.086**
	Sig. 2-tailed	.000	.000	.000
	N	3177	3177	3177
Financial_Motivation	Pearson Correlation	-.145**	.255**	-.008
	Sig. 2-tailed	.000	.000	.667
	N	3177	3177	3177
Work_Motivation	Pearson Correlation	.008	.016	.068**
	Sig. 2-tailed	.635	.354	.000
	N	3177	3177	3177

**. Correlation is significant at the 0.01 level (2-tailed).

Summary

The purpose of this quantitative, cross-sectional, study using secondary data, was to examine if and to what extent there was a relationship between strain and occupational fraud in the context of GST. Specifically, this study compared mean strain scores between (a) asset misappropriation offenses, (b) corruption offenses, and (c) fraudulent financial statement offenses. Additionally, this study analyzed if there was and to what extent there was a relationship between strain and (a) asset misappropriation, (b)

corruption, and (c) fraudulent financial statements. Specific strains were measured to generate strain scores related to occupational fraud offenses; those scores served as an independent variable. Additionally, fraud motives, which were classified as being (a) personal, (b) financial, or (c) work-related, served as another independent variable. The dependent variables in this study were the three types of occupational fraud offenses listed above. To address this purpose, three research questions were developed.

The first research question asked: Is there a difference in strain scores for asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses? The results of the nominal regression analyses indicated that there are differences, as it relates to strain scores, between the three forms of occupational fraud. Specifically, results show that there is a statistically significant difference in strain scores between financial statement fraud and asset misappropriation. There is also a statistically significant difference in strain scores between financial statement frauds and corruption. Interestingly, however, the results indicate that there is not a statistically significant difference between asset misappropriation offenses and corruption. The conclusion related to the first research question is that the data suggests that based on strain scores financial statement frauds differ when compared to asset misappropriation and corruption offenses. Based on strain scores there is not a statistically significant difference between asset misappropriations and corruptions.

The second research question asked: Is there a significant, positive relationship between strain scores and asset misappropriation fraud offenses, corruption fraud offenses, and fraudulent financial statement offenses? Logistical regression analyses

show mixed results. Strain as a predictor variable is both statistically significant and positive in relation to the response variable of asset misappropriation offenses. Strain as a predictor variable is not statistically significant and is negative in relation to the response variable of corruption offenses. Strain as a predictor variable is statistically significant and negative in relation to the response variable of financial statement fraud. The results show that strain does not impact all response variables to the same degree.

The third research question asked: Is there a statistically significant correlation between fraud motivation and asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses? Correlation analyses produced results that showed a statistically significant, and positive, correlation between personal motivation and asset misappropriation. Results demonstrated statistically significant, and negative, correlation between personal motivation and corruption. Personal motivation was also statistically significant and negative in relation to financial statement fraud. Financial motivation proved to be statistically significant in correlation to asset misappropriation offenses yet negative in direction. Financial motivation was statistically significant and positive in direction when correlated with corruption. Financial motivation was not statistically significant when correlated with financial statement fraud. Work-related motivation was not statistically significant for asset misappropriations or corruption offenses. Work-related motivation was statistically significant, and positive, when correlated with financial statement frauds.

In Chapter 5 the results of this study are further discussed through an interpretation of the findings. In that section the results are extended in relation to the

extant literature related to GST. Chapter 5 addresses the limitations of this study. Chapter 5 concludes with discussion related to recommendations and implications of this study. Importantly, Chapter 5 concludes with a discussion related to the potential impact of positive social change resultant from this study.

Chapter 5: Discussion, Conclusion, Recommendations

The ACFE (2012) estimated that the world economy loses over $3.5 trillion annually due to fraud. These losses negatively impact the economy, leading to additional hardships for individuals, families, municipalities, and organizations. Occupational fraud is a specific subtype of fraud. Planning, directing, and controlling behavior are important aspects of the field of management. This study relates to the field of management through the study of individual behaviors in relation to occupational consequences. Scholars and practitioners have developed research agendas and policy decisions aimed at reducing occupational fraud losses.

The problem of occupational fraud and its negative impact on the economy is important to the fields of criminology and accounting. From a general perspective occupational fraud involves wrongful acts that ultimately result in victims losing some, or all, access to financial resources that rightfully belong to them. These frauds can lead to financial hardship for individuals and business entities alike. Additionally, these frauds may lead to general distrust of societies and people. Within the field of accounting, financial statement frauds have been discovered in both public and private companies. Financial statement frauds mislead creditors and investors and result in financial decisions that are based upon misleading and deceptive information.

The purpose of this quantitative, cross-sectional study using secondary data was to examine if and to what extent there was a relationship between strain and occupational fraud in the context of GST. Specifically, in this study strain scores between (a) asset misappropriation offenses, (b) corruption offenses, and (c) fraudulent financial statement

offenses were compared. Additionally, if there was and to what extent there was a relationship between strain and (a) asset misappropriation, (b) corruption, and (c) fraudulent financial statements were analyzed. Strain theory has been in the criminology literature for over 50 years and has undergone numerous revisions; however, GST has been difficult to test (Agnew, 2001). Nonetheless, past researchers (Eitle, 2010; Ganem, 2010; James et al., 2014; Langton & Piquero, 2007; Lin et al., 2011) have found creative ways to quantify strain factors to explore relationships between strain and various criminal offenses. This study also quantified factors that lead to strain such that analyses could be conducted that explored relationships between strain and occupational fraud specifically.

The findings show mixed support for GST in that strain was not found to be significantly related to all forms of occupational fraud. A statistically significant relationship between strain and asset misappropriation offenses was discovered. A statistically significant relationship was also found between strain and financial statement fraud offenses. No statistical significance could be found in relation to strain and corruption.

The findings of this study also suggest that there was no significant difference between asset misappropriations and corruption offenses in relation to strain scores. Financial statement fraud offenses, as it relates to strain, were shown to be statistically different than asset misappropriation and corruption offenses. These findings highlight the fact that occupational frauds do not all respond with the same strength or directionality in conjunction to strain.

The findings also suggest that personal motivation is significantly correlated to all three occupational offense types. Financial motivation was significantly correlated to corruption and asset misappropriation offenses. Work-related motivation was significantly correlated to financial statement fraud offenses.

Interpretation of the Findings

The purpose of this study was to examine if, and to what extent, there was a relationship between strain and occupational fraud in the context of GST. Based on the outcomes of the findings, conclusions could be interpreted as follows:

Research Question 1

Is there a difference in strain scores for asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses?

Findings from this study show that mean strain scores are different between financial statement frauds and both asset misappropriations and corruption offenses. Findings do not show that asset misappropriation offenses and corruptions are different relative to strain scores. Peer-reviewed literature has not previously studied behavioral tendencies related to strain and occupational frauds. Nonetheless, knowledge suggesting differences relative to strain between the various occupational fraud types allows for further consideration related to fraud prevention strategies that would differ by fraud type. Additionally, fraud prevention strategies might be more similar when addressing asset misappropriation and corruption since they are more closely related as it pertains to strain.

Research Question 2

Is there a significant relationship between strain scores and asset misappropriation fraud offenses, corruption fraud offenses, and fraudulent financial statement offenses?

Findings from this study show a statistically significant relationship between strain and asset misappropriation offenses. The findings also show a statistically significant relationship between strain and financial statement offenses. However, no statistically significant relationship was discovered between strain and corruption offenses. These findings show mixed support for GST.

Prior research (Hay & Meldrum, 2010; Lin et al., 2011; Langton & Piquero, 2007; Jang et al., 2014; Hollist et al., 2009; Moon & Morash, 2013; Eitle, 2010) has shown mixed support for GST. Jang et al. (2014) analyzed strain from being bullied to the deviant response bullying others and found statistical significance. Lin et al. (2011) found that strain resulting from violent victimization to be significantly related to deviant behavioral response actions. Hollist et al. (2009) found a statistically significant relationship between strain felt by children who were maltreated by their parents and general delinquency. Langton and Piquero (2007) analyzed strain in relation to eight types of white-collar offenses. They found statistical significance between strain and certain forms of white-collar offenses. GST has been studied in a wide variety of contexts. Empirical evidence, from extant literature, supports the primary basis of GST in that strain may be linked to deviant behavior. This study utilized a methodological approach similar to past GST research, found empirical support linking strain to both asset misappropriation and financial statement fraud offenses.

GST as developed by Agnew (1985) suggested that strain, as felt by individuals, may result in delinquent behavior. Strain pressure might trigger a response pattern that leads to deviant behavior. Agnew (1985) suggested that strain from three areas was most likely associated with deviant response patterns. Those sources included (a) the failure to achieve a goal, (b) the removal of positive stimuli, and (c) the presence of negative stimuli. Agnew (2012) suggested that strains related to parental rejection, excessive discipline, bad school experiences, work-related stressors, unsafe living conditions, and unhealthy financial circumstances would be more likely than other strains to trigger deviant behavior. The present study was designed in a way that measured strain resultant from a variety of personal and work-related sources such that strain could be measured within the theoretical framework of GST. The results show mixed support for GST within the context of occupational fraud deviant behavior.

GST posits that crime is an individual response to strain, and the source of strain that leads to criminal behavior is rooted in social interaction. Therefore, GST provides a perspective of crime causation that is both individual and societal. The foundational element of GST is that strain is pressure applied to individuals that may result in delinquent behavior. Arguably, every individual feels strain at various times throughout the course of a lifetime. However, in the context of crime causation, strain pressure triggers response patterns in some people that lead to delinquent behavior. The findings of this study do not provide comprehensive support for GST, but they do show some support. Based the findings of this study strain is not a significant factor in corruption offenses. Extant literature has demonstrated mixed support for GST and this study also

shows mixed support. Therefore, consistent evidence is found to initially suggest that, as Agnew (1985) theorized, strain pressure may lead to deviant behavior.

Table 20 shows the results of this study in alignment with GST and extant literature.

Table 20

Findings in Alignment With GST and Extant Literature

	Strain (IV) Significantly Related to Fraud Act	Fraud Type	Supports GST	Findings Consistent with Extant Literature
RQ2	Yes	Asset Misappropriation	Yes	Yes
RQ2	No	Corruption	No	No
RQ2	Yes	Financial Statement Fraud	Yes	Yes

Research Question 3

Is there a statistically significant correlation between fraud motivation and asset misappropriation fraud offenses, corruption offenses, and fraudulent financial statement offenses?

The findings of this study show that two fraud motivations are statistically significantly correlated to asset misappropriations. Those motivations include personal motivation and financial motivation. The findings also show that two fraud motivations

are statistically significantly correlated to corruption offenses. Those motivations include personal motivation and financial motivation. Two fraud motivations were found to be statistically significant as it pertains to financial statement fraud offenses. Those motivations included personal motivation and work-related motivation. These findings are interesting in that the data shows that asset misappropriation and corruption offenses are similar as it relates to mean strain scores and also fraud motivation type. Also interesting is that the only occupational fraud motivation type that was significantly correlated with work-related motivation was financial statement fraud.

GST posits that strain leads to negative emotions that may, in turn, lead to delinquent behavior (Agnew, 2012). Langton and Piquero (2007) completed a study related to GST and specifically analyzed the relationship between strain and WCC offenses. In their study they calculated a strain score for each offender within their sample. The strain score served as an independent variable in their study. The researchers also determined three motivations for the crimes in their sample. Each offense was assigned to one of the three motivations. The motivations served as a proxy representing negative emotionality. In a similar way, the present study identified three types of motivation that served as proxies for negative emotionality. The findings of this study do support GST in that negative emotionality, as conveyed through fraud motivations, contribute to a positive and significant relationship in some cases. These findings are consistent with the results from Langton and Piquero (2007).

To the extent that GST requires a negative emotional response from strain in order to lead to a deviant behavior, the present study shows support for GST. Like

Langton and Piquero (2007), negative emotionality understood through fraud motivation, shows empirical support of statistically significant relationships between certain fraud motivations and each occupational fraud offense type. Specifically, personal motivation was significantly related to asset misappropriation, corruption, and financial statement fraud offenses. Financial motivation was significantly related to asset misappropriation and corruption offenses. Work-related motivation was significantly related to asset misappropriation and financial statement frauds. The findings showed that the specific types of fraud motivation were different across the various occupational fraud types. These results do demonstrate support for GST and suggest that the three forms of occupational fraud types studied may in fact behave differently, as it relates to strain and motivation.

Table 21 shows the results of Research Question 3 in alignment with GST and extant literature:

Table 21

Motivational Factors in Alignment with GST and Extant Literature

	Motivational Factor	Significant Correlation between Motivation and Fraud Act	Fraud Type	Supports GST	Findings Consistent with Extant Literature
RQ3	Personal Financial Work-related	Yes Yes Yes	Asset Misappropriation	Yes	Yes
RQ3	Personal Financial Work-related	No Yes No	Corruption	Mixed	Mixed
RQ3	Personal Financial Work-related	Yes No Yes	Financial Statement Fraud	Yes	Yes

Limitations of the Study

Present in this study are limitations. First, the data supplied by the ACFE were based on their understanding of fraud offenders, rather than being obtained directly from fraud offenders. The strain indicator data related to educational level, work history, family stressors, and past criminal behavior. There is the possibility of misunderstanding data related to each strain indicator exists. This limitation was addressed by using a high number of fraud cases in the study. It was originally planned that this study would be based on the analysis of over 5,000 occupational fraud cases. As the data was filtered for this study the sample was reduced from over 5,000 cases down to 2,910 cases. Although

the number of cases was reduced from the original plan, the sample size was still large enough to mitigate this limitation.

Another limitation of this study related to content validity. GST offers a list of strain conditions that are most frequently associated with delinquent response patterns. Not all GST strain conditions were present in the set of data that was used in this study. There is a risk that the calculated strain scores would not accurately represent strain as described by the GST. Agnew recognized that this limitation would affect researchers attempting to test GST (Agnew, 1985), and it may present a risk to content validity. However, based on previous research on GST, this limitation can be addressed through the evaluation of various strain indicators. Prior GST research shows that it is acceptable to measure strain based on many different types of strain. The present study measured strain based on several criteria associated with GST; thus, the approach is consistent with the norms of criminological research.

Recommendations

The present study analyzed occupational fraud offenses in relation to strain factors. The results suggest that strain is related to both asset misappropriation offenses and financial statement fraud offenses. The results also indicate the negative emotionality, as measured by fraud motivation, is correlated to each of the three occupational fraud offense types. The results contribute to existing literature and further support the premise that occupational frauds may result from strain pressure. It is recommended that future studies in the areas of strain and occupational fraud be extended to the following:

1. This study did control for gender. Male perpetrators accounted for 59% of all occupational fraud offenses in this study. A logistic regression was conducted to test Hypothesis 2, hypothesis 3, and hypothesis 4, of which the respective null hypotheses stated that the independent variable of strain and the dependent variable of the respective occupational frauds would show no correlation. The results provided evidence to reject the null hypotheses related to asset misappropriation and financial statement fraud. It can be concluded that there this is a statistically significant correlation between strain and asset misappropriation. It can also be concluded that there is a statistically significant correlation between strain and financial statement fraud. The results do not further specify how gender may impact these results. Future studies that further analyze strain, and strain factors, by gender may provide additional insights as to how males and females may respond differently to different types of strains. A study of this nature would allow for a more detailed understanding of specific strain factors, and the response of deviant behavior, as separated by male and female offenders. Knowledge of this nature may provide insights helpful in reducing specific and more harmful strains by gender.
2. A logistic regression was conducted to test hypothesis 4, of which the null hypothesis stated that the independent variable of strain and the dependent variable of financial statement fraud would show no correlation. The results provided evidence to reject the null hypothesis. Based on that finding, the

results suggest that financial statement frauds are significantly correlated with strain. A Pearson correlation analysis was conducted to test hypothesis 13, of which the null hypothesis stated that the independent variable of work-related motivation and the dependent variable of financial statement fraud would not be statistically significant. The results provided evidence to reject the null hypothesis. Based on that finding, the results suggest that work-related motivation is significantly correlated to financial statement frauds. Emerging from this study is the need to focus upon the specific elements related to strain, work-related motivation and financial statement fraud. A nominal regression was conducted to test hypothesis 1, of which the null hypothesis stated that the mean strain scores between the three types of occupational fraud would not differ. The results provided evidence to reject the null hypothesis as it concerned the mean strain score of financial statement frauds in relation to asset misappropriations and corruptions. Based on these factors it is evident that a concentrated study, specifically devoted to financial statement fraud, aside from the other types of occupational fraud may be warranted.

3. Logistic regressions were conducted to test hypothesis 4, hypothesis 5, and hypothesis 6, of which the null hypotheses respectively stated that the independent variable of strain and the associated dependent variable of occupational fraud would show no correlation. The results provided evidence to reject the null hypotheses related to asset misappropriation and financial

statement frauds. Based on these findings, the results suggest that asset misappropriation offenses and financial statement frauds are significantly correlated with strain. This study used various strain factors to generate a strain score for each occupational fraud offense type. Future studies that incorporate multiple linear regression may be able to be directed at specifically identifying the strain factors that present the strongest correlation to asset misappropriations and financial statement frauds. Discoveries related to this study would determine which strains factors relate most significantly to each type of occupational fraud.

4. The present study did not isolate understanding beyond occupational fraud type. Placing specific focus on financial statement fraud, future studies that further analyze attributes related to victim organizations would yield knowledge about similarities and dissimilarities related to strain impact related to organizational size, number of employees, and industry type. Future studies, with this focus, could allow for a more detailed understanding related to stain significance by organizational attributes. Knowledge from this study might help to shape policy by industry or other characteristic such that strain reduction efforts could be more precisely developed.
5. The present study did not differentiate strain by perpetrator characteristics. A logistic regression was conducted to test hypothesis 2, hypothesis 3, and hypothesis 4, of which the respective null hypotheses stated that the independent variable of strain and the dependent variable of the respective

occupational frauds would show no correlation. The results provided evidence to reject the null hypotheses related to asset misappropriation and financial statement fraud. It can be concluded that there this is a statistically significant correlation between strain and asset misappropriation. It can also be concluded that there is a statistically significant correlation between strain and financial statement fraud. The results do not further specify how perpetrator age, race, or other attributes may impact these results. Future research that analyzes strain, by perpetrator age, race, or other attributes might create knowledge about the interaction between perpetrator attributes and the impacts of strain factors. These results may help to shape strain reduction policies based on employee characteristics.

Implementing the proposed research recommendations will ensure that a robust understanding of the various attributes of strain is understood by detailed perpetrator and victim attributes. Knowledge at this level would allow researchers and policy makers the opportunity to shape future decisions with precise consideration related to strain reduction strategies by offender characteristic and victim organization characteristic.

Implications of the Study

Social change first requires an understanding about issues and conditions that are important to individuals, families, organizations, and societies as a whole. The social issue that served as the foundation of the present study was the economy and its effect upon businesses as well as individual members of society. A strong and vibrant economy provides business leaders an opportunity to grow and increase employment opportunities.

Individuals benefit from employment opportunities as they have more income and a better ability to meet the financial needs of their families. As both businesses and individual members of society have increased earnings, all levels of government would benefit through increased tax revenue. The foundational social understanding of the present study is that it is important to individuals, families, organizations, and societies for the economy to be as healthy and strong as possible. Negative impacts to the economy, in the form of fraud losses, serve to weaken the economy and harm societies.

Knowledge is needed to invoke social change. This study generated new knowledge related to occupational fraud such that specific actions might be taken that lead to a reduction in fraud losses. Societies that experience fewer fraud losses might experience positive social change through stronger economies. This study is the benefactor of much research previously conducted in the areas of strain theory and occupational fraud. The results of this study may add to the existing body of knowledge and collectively the enhanced knowledge base can be used to create social change. There is an interconnectedness between past research and the present work. Just the same there is an interconnectedness woven through societies. Individuals participate and engage with one another through social, organizational, and employment functions. Social change that impacts one area likely has a residual impact on the other areas of society. The present study, although focused on reducing fraud losses from an economic perspective, through a concept of interconnectedness, provides a platform of social change that can be at the individual, family, or work level.

Financial Statement Fraud

The results of this study show a statically significant correlation between the presence of strain and financial statement fraud offenses. The results also show a significant relationship between work-related motivational forces and financial statement fraud offenses. Positive social change can be realized if organizations suffer fewer financial statement fraud losses. The results of this study imply that the development of policies and strategies concentrated on reducing strain factors and reducing negative work-place motivators may lead to fewer losses from financial statement fraud. A closer look at the strain factors, and the work-related motivational forces is needed in order to more fully understand how the implications of this study might relate to social change. Strain in this study was assumed to be higher for individuals who (a) were less educated, (b) were unable to hold a job for longer periods of time, (c) had prior convictions or charges, (d) showed signs of addiction problems, (e) had family problems, and (f) had financial difficulties. These factors predicate conditions for strain. The premise is that these attributes create conditions that lead to three required elements of GST. Those three element include (a) failure to achieve a positively valued goal, (b) removal of a positive stimuli, or (c) presence of a negative stimuli (Agnew, 1985). The results of this study imply that efforts made to help individuals get more educated, maintain employment, and avoid legal and family problems may ultimately reduce the incidences of financial statement fraud.

Work-related motivation is significantly correlated to financial statement fraud offenses. The risk factors associated with work-related motivation are (a) frequent

complaints about lack of authority or having been passed over for promotion, (b) unusually close association with a vendor or customer, (c) excessive control issues regarding job, and (d) excessive pressure to perform within the organization. The results of this study imply that individuals who demonstrate negative work-place situations are motivated to commit financial statement fraud offenses. This finding is not surprising. Financial statement fraud offenses are generally perpetrated by higher income employees who might not necessarily have high levels of personal financial strain. Furthermore, the gains to financial statement fraudsters are less immediate. What is implied by the results of the present study is that individuals who have work-related motivation may be more inclined to commit financial statement fraud. To invoke positive social change, through a reduction in financial statement fraud losses, organizations might consider looking at policies around employee goal setting. Ensuring that the goal setting process is fair and reasonable may reduce the likelihood of unreasonable goals, which would reduce the likelihood of having a condition of failing to achieve a positively valued goal. Organizations might also be challenged to be careful to not remove positively value elements of the workplace environment. Examples of this might include (a) various benefits, (b) flexible work schedules, (c) compensation programs, and (d) employee recognition programs. Attention in these areas might reduce the condition of removing a positive stimuli, and thus reduce the number of incidences of financial statement fraud.

Asset Misappropriation Fraud

The results of this study show a significant correlation between the presence of strain and asset misappropriation fraud offenses. The results also show a significant

relationship between (a) personal motivational forces, (b) financial motivational forces, and (c) work-related motivational forces and asset misappropriation offenses. The implication of these findings is that strain may be a catalyst for asset misappropriation fraud offenses. Social change, as it relates to asset misappropriation offenses, may be addressed by focusing on the same strain factors as were suggested for financial statement fraud offenses. The implication is that efforts made to help individuals get more educated, maintain employment, and avoid legal and family problems may ultimately reduce the incidences of asset misappropriation frauds.

There are many specific forms of asset misappropriation offenses. These offenses include (a) larceny, (b) skimming, (c) billing schemes, (d) payroll schemes, (e) expense reimbursement schemes, (f) check tampering, and (g) register disbursements. The results of this study imply that there is a significant relationship between the presence of feeling strain and committing an asset misappropriation offense. As posited by Agnew (1985) it is also important to consider the role that negative emotionality has in the process of deviant behavior. This study used fraud motivations as a proxy for negative emotionality. Three fraud motivations were considered in this study. Those motivations included (a) personal motivation, (b) financial motivation, and (c) work-related motivation. Interestingly, significance of relationship was found between all three forms of motivation and asset misappropriation offenses. Based on these results no distinguishing and specific factors addressing asset misappropriation are evident. This might be the result of asset misappropriation offenses being a general category with many specific frauds aligned to it. It can be implied that personal strains, financial strains, and

work-related pressures may all have a propensity to lead to asset misappropriation offenses. In the field of accounting the issue of safeguarding organizational assets is covered through the internal control framework. Internal controls are designed to reduce the opportunity that assets could be misused or otherwise taken. Impacting social change through reduced asset misappropriation offenses likely requires a concentrated effort related to controls. One practical area of focus that might address control in the context of strain is related to hiring and promotion policies. Evidence from this study suggests that individuals may feel strain due to personal and financial life circumstances. These strains may be present before a person is employed at a given organization. Screening procedures related to hiring and promotions that consider strain indicators may reduce the likelihood that high risk individuals would be hired into a position that placing in job that has access to key organizational assets.

Corruption

No statistically significant correlation was found, in this study, between strain and corruption offenses. Corruption offenses include (a) conflicts of interest, (b) bribery, (c) illegal gratuities, and (d) economic extortion. A significant relationship was discovered between financial motivation and corruption offenses. Financial motivation was comprised of risk factors related to (a) financial difficulties, (b) living beyond means, (c) history of past employment related problems, and (d) frequent complaints about inadequate pay. The results imply that corruption offenses might be perpetrated by individuals who are feeling financially motivated stress. Whereas the financial motivation is related to corruption offenses, strain itself was not significantly related. An

implication of this study, as it relates to corruption, is to reduce corruption fraud losses through hiring practices. Employing proper financial screening methods during the hiring process for key employees, may reduce the likelihood of future corruption losses.

The first research question of this study compared mean strain scores among the three occupational fraud types. The results indicated that there was not a significant difference in strain-means between corruption and asset misappropriation. This result implies that policy and organization choices to reduce strain related fraud risk might be similar between asset misappropriation and corruption offenses.

Conclusion

GST is a theory that suggests that certain strains lead to negative emotionality responses, which in turn serve as a catalyst for fraudulent behavior (Agnew, 1985). This theory has never been tested exclusively in the context of occupational frauds. Using secondary data, supplied by the Institute for Fraud Prevention, a quantitative cross-sectional study was conducted to analyze the relationship between strain, negative emotional responses and occupational frauds. This study addressed a gap in the literature related to GST. Prior studies (Hay & Meldrum, 2010; Lin et al., 2011; Langton & Piquero, 2007; Jang et al., 2014; Hollist et al., 2009; Moon & Morash, 2013; Eitle, 2010) have been conducted to test the merits of GST in various contexts. However, absent from existing literature are studies analyzing strain and white-collar crimes. Langton and Piquero (2007) did complete one study with that focus. However, no other known studies have address occupational fraud specifically in relation to GST. This study filled that gap in the literature.

The results of this study show mixed support for GST in that strain was not found to be significantly related to all forms of occupational fraud. It was discovered that strain is significantly related to both asset misappropriation offenses and financial statement fraud offenses. Those results support GST. A significant relationship was not discovered between strain and corruption offenses. Various fraud motivations were found to be significantly related to each of the three occupational fraud types. As a body of work, this study concludes that GST is mostly supported within the context of occupational fraud. Specific results allow for insights leading to practical application that might help to address fraud prevention and detection. Notably, work-related motivations were found to be significant with regard to financial statement frauds. Practical steps at the organizational level to address strain resultant from (a) failure to achieve positively valued goals, (b) removal of positive stimuli, and (c) presence of negative stimuli may result in lower levels of individual strain and correspondingly few financial statement fraud losses. This research effort was founded on the problem of economic losses related to fraud. This study contributes to the existing body of knowledge and offers specific and tangible ways to approach strategies to reduce fraud losses. This study also raises new questions and provides suggestion for future research agendas concentrated on strain in conjunction with fraud prevention and fraud detection strategies.

This study impacts positive social change through an overt focus on reducing fraud losses. The results of this study empirically show that strain impacts choices that lead to asset misappropriation and fraudulent financial statement frauds. Additionally, work-related motivation is significantly related to financial statement frauds. This

knowledge can be used by practitioners to develop policies that focus on strain reduction as well as control mechanism to reduce fraud opportunities. As work-related conditions are improved, and strain is reduced, fewer fraud losses may result. Fewer fraud losses may lead to increased revenues and earnings for organizations and governments. Increased revenues and earnings may lead to healthier and more stable economies. In turn, society as a whole will be benefitted through stronger economies that result in more job opportunities. Positive social change is the result of putting this new knowledge into practice. The ultimate impact to positive social change rests in the ability to reduce fraud losses; this study has the potential to contribute to that endeavor.

The ACFE (2012) estimated that the world economy loses over $3.5 trillion annually due to fraud. At the national level, the U.S. Department of Commerce, Bureau of Economic Analysis (2013) reported that as of the fourth quarter of 2013, the GDP for the United States was $17.089 trillion. Estimates based on those measures suggest that U.S. companies may lose over $850 billion of revenue each year due to fraud. The problem of massive fraud losses, globally and nationally, led to this study and the development of three research questions. Research Question 1 asked: Is there a difference in strain scores for asset misappropriation fraud offenses, corruption fraud offenses, and fraudulent financial statement offenses? Research Question 2 asked: Is there a significant relationship between strain scores and asset misappropriation fraud offenses, corruption fraud offenses, and fraudulent financial statement offenses? Research Question 3 asked: Is there a statistically significant correlation between fraud motivation and asset misappropriation fraud offenses, corruption offenses, and fraudulent

financial statement offenses? The data produced information, addressing these research questions, that determines that strain is significantly correlated to both asset misappropriation and financial statement fraud offenses. The data produced information that suggests that work-related motivation is significantly correlated to financial statement frauds. This knowledge can be used to develop management and control policies that specifically address work-related motivational forces. If strain resultant from work-place factors can be reduced through improved management and control the possibility exists to effectively reduce incidences of fraud losses. Considering the massive negative impact upon societies as a result of fraud losses, this study produces new knowledge that may contribute to positive social change.

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Appendix: Project Acceptance From IFP

IFP | Institute for Fraud Prevention

Project Acceptance
Memorandum of Understanding and Non-Disclosure Agreement

The researchers listed below have requested access to the IFP's ACFE Reports to the Nation(s) database.

The IFP Membership has voted to support your project, "project name." Such support is subject to the following terms and conditions.

- It is expected that any grant recipients will make substantial progress on their project by the next IFP semi-annual meeting.
- Grant recipients are expected to present a progress report at each semi-annual IFP meeting until the project is completed and a final research report of the results of their study upon completion of the project. The final research report is expected to be a live presentation.
- Research proposals requesting access to IFP databases will not be funded monetarily by the IFP.
- If a researcher in any way adds to an IFP database, at the 1 year anniversary from the inception of the research effort (defined at the date the database is provided by the IFP to the researcher(s)), that researcher / research team agrees to provide the IFP with any additional observations and/or data items as well as the supporting documentation (properly organized and referenced) so that the IFP can verify the accuracy of the additional data. It is also then understood that after the 1 year anniversary from the inception of the project, that the additional data shall, at the IFP's discretion, be included in the IFP database and the IFP may provide the expanded dataset to other researchers / research teams.
- Researchers awarded access to the IFP database are limited in using that database solely for the project included in the research proposal. Researchers agree to limit their research of the database to the proposed idea. Additional examinations, extensions or any investigation not specifically included in the research proposal must be included in a subsequent IFP proposal. The IFP will determine which proposals will be supported and will formally notify the researcher. The IFP makes no commitment to support any projects.
- Researchers awarded access to the IFP databases agree that they will not share the IFP databases in any form, in whole or in part, with anyone not explicitly included on the research proposal.
- Researcher will not use the data for purposes other than the IFP approved project
- Researcher will not disclose IFP dataset data, in whole or in part, to any person who is not on the project proposal without the IFP's written authorization.
- Researcher agrees to use reasonable care to protect the database from disclosure to third parties.
- Researchers may publish research output created from the database 's raw data in reports/presentations consistent with the approved project, provided that:
    - Such output is presented in such a manner that it is not reasonably likely to identify the victim, perpetrator or survey respondent of any case.
    - In no circumstances can a researcher present data with respect to any single observation.
- Research reports created by the researcher(s) and submitted upon completion of the project will be included on the IFP website.
- Researchers whose findings are published or publicly presented will acknowledge IFP support.

Agreed:

Researcher

12/19/2013
Researcher

Curriculum Vitae

Mr. Timothy W. Bergsma
Davenport University
Accounting & Finance
(616) 554-5177
Email: Timothy.Bergsma@davenport.edu

Education

MBA, Grand Valley State University, 2001.
Major: General Business

BBA, Davenport College of Business, 1995.
Major: Accounting

Professional Positions

Academic - Post-Secondary

Assistant Professor, Davenport University. (2007 - Present).

Professional

President, Discount Food Service, LLC. (January 2006 - August 2007).

Platform Finance Director, Johnson Controls, Inc.. (September 1998 - January 2006).

Eastern Region - Cost Accountant, Leprino Foods, Inc.. (June 1997 - September 1998).

Licensures and Certifications

Certified Fraud Examiner (CFE), Association of Certified Fraud Examiners.

Certified Management Account (CMA), Institute of Management Accountants. (May 2008).

Professional Memberships

Association of Certified Fraud Examiners.

Institute of Management Accountants.

Development Activities Attended

Conference Attendance, "Teachers Learning Institute," Davenport University, Michigan. (2012).

Conference Attendance, "Teachers Learning Institute," Davenport University, Michigan. (2011).

Conference Attendance, "Teachers Learning Institute," Davenport University, Michigan. (2010).

Workshop, "Process Based Management Training," Davenport University, Grand Rapids, MI. (2010).

Doctoral Residency, "Doctoral Residency," Walden University, Landsdowne, VA. (December 2009).

Conference Attendance, "Association of Certified Fraud Examiners: Fighting Fraud," Association of Certified Fraud Examiners, Austin, Texas. (2009).

Conference Attendance, "Teachers Learning Institute," Davenport University, Michigan. (2009).

Conference Attendance, "Teachers Learning Institute," Davenport University, Michigan. (2008).

Course, "Internal Controls - Legal Issues," Davenport University, Grand Rapids, Michigan. (2008).

TEACHING

Awards and Honors

Excellence in Teaching Award, Davenport University. (August 2011).

RESEARCH

Presentations Given

Bergsma, T. W. (Author & Presenter), IIA / ISACA Conference, "Teaching Ethics: Tranlating to Behavior," Institute of Internal Auditors & Info. Systems Audit & Control Assoc., Lasing, MI. (June 4, 2013).

Bergsma, T. W. (Author & Presenter), Green Week, "Fraud and the guise of sustainability," Davenport University, Grand Rapids, Michigan. (March 18, 2013).

Bergsma, T. W. (Author & Presenter), General Member Meeting - IMA, "Criminology & Fraud," Institute of Managements Accountants - Grand Rapids Chapter, Grand Rapids, Michigan. (January 17, 2013).

Bergsma, T. W. (Author & Presenter), General Member Meeting - ACFE, "Criminology & Fraud," Association of Certified Fraud Examiners - Lansing / Grand Rapids Chapter, Grand Rapids, Michigan. (April 18, 2012).

Bergsma, T. W. (Author & Presenter), Hamstra, C. A. (Author & Presenter), Faculty Enrichment Week (FEW), "Connecting with Students," Davenport University, Grand Rapids, Michigan. (2011).

Bergsma, T. W. (Author & Presenter), Green Week Forum, "Fraud and Sustainability," Davenport University, Grand Rapids, Michigan. (2011).

Bergsma, T. W. (Author & Presenter), Green Week Forum, "Triple Bottom Line," Davenport University, Grand Rapids, Michigan. (2010).

Bergsma, T. W. (Author & Presenter), Green Week Forum, "Triple Bottom Line," Davenport University, Grand Rapids, Michigan. (2009).

Bergsma, T. W. (Author & Presenter), Focus the Nation Forum, "Triple Bottom Line," Davenport University, Grand Rapids, Michigan. (2008).

Research in Progress

"Convergence of GAAP & IFRS: Understanding Fraud Risks" (On-Going)
This research effort explores the convergence between GAAP and IFRS and specifically seeks to understand where fraud risks are most prevalent. Financial Statement fraud is among the most costly types of occupational fraud. Better understanding what fraud risks are present when converging IFRS and GAAP can help us better know how to prevent such financial statement frauds.

"General Strain Theory & White-Collar Crime" (On-Going)
This research effort explores General Strain Theory in relation to white-collar crimes. Most of the research conducted to date related to strain theory has been done in the context of traditional street crimes. My research is interested in strain theory related to white-collar crime. The results of the study can help us better understand how traditional street crimes and white-collar crimes may be similar or not.

"Money Laundering: Implications and Future Research Agenda" (On-Going)
Much of the literature surrounding money laundering has surfaced from economics. This study examines current literature and critically assesses what is known and what a future research agenda might look like. The future research agenda considers how money laundering research might fit into a sociology framework.

SERVICE

University Service

Faculty Advisor, ACFE Student Chapter. (January 2013 - Present).

Faculty Advisor, IMA Student Chapter. (January 2013 - Present).

Faculty Advisor, Business Professionals of America. (2007 - 2010).

Faculty Advisor, CONNECT (student organization). (2007 - 2010).

Judge, Business Professionals of America - Michigan. (2009).

Committee Member, Green Week. (2009).

Co-author. (2009).

Judge, Business Professionals of America - Michigan. (2008).

Committee Member, Focus the Nation. (2008).

Professional Service

Board of Directors of a Company, Institute of Management Accountants (IMA), Grand Rapids, MI. (January 2012 - Present).