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Owner-Manager Separation and the Structure of IT Governance in Small Business

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This is to certify that the doctoral study by

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Abstract

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MEd, University of West Alabama, 1973

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

Small business owners and small business managers tend to favor different information technology (IT) governance structures. Such differences can lead to ineffective management and control of IT in small businesses. The purpose of this correlational study was to examine the extent and nature of the association between owner-manager separation in small businesses and the structure of IT governance in the businesses. Agency theory formed the theoretical framework of this study. Data were collected using a web-based survey and randomly sampled 3,697 small business owners and managers located in New Jersey and Pennsylvania. Chi-square statistics indicated no significant association between owner-manager separation and the IT governance structure used in small businesses. A centralized form of IT governance was most prevalent in small businesses. Small business owners maintained influence over IT governance decisions despite ceding responsibility to managers for operational components of their business, a condition that appears to conflict with pure agency theory. The research findings may contribute to a better understanding of technology governance in small businesses, which in turn could lead to more effective and efficient operation of those businesses. Increases in small business effectiveness and efficiency can result in positive social change from greater employment opportunities as small businesses prosper and grow.

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Dedication

I dedicate this work to my family, the central point of my life. I dedicate this to my wife, Cheryl, for her unending support and understanding not only through this effort, but also through all the ups and downs of our life together. I also dedicate this to my sons Matthew and Alexander, who are on their own life journeys to success and happiness. I hope that this inspires them to realize that you can achieve whatever goals you set through dedication, hard work, and support from your family.

Acknowledgments

The journey to a doctoral degree is long and arduous. Throughout my journey, I was fortunate to have several people who provided the guidance and encouragement needed to smooth the way forward. To my committee chair, Dr. Bruce Lazar, I am grateful for all the advice, encouragement, and patience he provided over the past few years. My committee second, Dr. Cheryl McMahan, and my research reviewer, Dr. Diane Dusick, also provided indispensable assistance and encouragement throughout the doctoral study process. In addition, I would like to commend my DBA methodologist, Dr. Al Endres, for ensuring that my research met the rigorous standards expected from a doctoral candidate. Last, but certainly not least, this section would not be complete without acknowledging the numerous Walden University faculty I had the pleasure of learning from throughout my doctoral journey. Their knowledge and dedication were truly an inspiration to me.

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Section 1: Foundation of the Study

The purpose of this study was to generate information to examine the association between owner-manager separation and the governance of information technology (IT) in small businesses. Small business IT governance has received little attention in scholarly research. The information generated from the study may help future scholars fill a gap in current research into the structure of IT governance in small business environments.

Background of the Problem

As IT has become ubiquitous in the business world, IT governance has become important in driving IT decisions toward meeting business goals (Wilkin & Chenhall, 2010). IT is now a strategic business asset and its governance is critical for corporate performance (Vithayathil, 2013). IT governance forms the foundation for effectively operating a firm's technology infrastructure through the establishment of controls, processes, and monitoring mechanisms designed to ensure the technology operates in the best interests of the firm's ownership and management. Researchers have documented that effective governance can add between 20 % and 30 % to an organization's return on assets (Henry, 2010; Yang, 2011). Al-Zwyalif (2013) documented how IT governance influenced the validity of a firm's accounting information. Researchers have also indicated investors are more willing to finance firms that evidence good governance (Chung & Zhang, 2011).

In the modern environment, key business processes are now automated or dependent upon IT functionality (Hamdan, 2011). IT functionality has also become more complex. Business executives may not be aware of and prepared to manage the increased

scope and complexity of their IT environment (Wilkin & Chenhall, 2010). Effective IT governance has become a necessity for business executives to achieve value-added benefits from their IT investments. Creating and maintaining a viable IT infrastructure is expensive and requires a high level of technical expertise. The IT governance process is especially critical in small businesses, where the level of IT expertise and general managerial skills may not be sufficient to maximize the potential advantages of IT (Berte, Rodrigues, & Almeida, 2010). Yet there exists a gap in the literature exploring IT governance in small businesses (Asante, 2010). Findings from this study allowed me to fill part of the gap by examining the association between ownership and management in small businesses and the structure of IT governance in those businesses.

Problem Statement

Ineffective IT governance manifests in projects not completed on time or within budgets, continued use of outdated technology, incorrect data, and difficulty aligning IT to serve business strategy (Hamdan, 2011; Weill & Ross, 2004). More than 60% of IT projects either run over budget or fail to complete, primarily due to lack of effective IT governance (Conboy, 2010; Mohamed & Singh, 2012). IT governance may be more critical in small businesses because of the flatter organizational structures, fewer resources, more limited controls, and less developed process maturity typically found in these businesses (Huang, Zmud, & Price, 2009, 2010; Terziovski, 2010; Wilkin, 2012). The general business problem is that ineffective IT governance in small business ultimately results in profit loss to owners. The specific business problem is that some business owners and business managers favor different IT governance structures (Devos,

Van Landeghem, & Deschoolmeester, 2012; Xue, Ray, & Gu, 2011). Such differences, coupled with a lack of information available to small business owners of the association between owner-manager separation and IT governance structure, can lead to ineffective management and control of IT technology in small businesses.

Purpose Statement

The purpose of this quantitative, correlational study was to examine the extent and nature of the association that may exist between owner-manager separation in small businesses and the structure of IT governance in the businesses. The study consisted of two variables. One variable was the type of owner-manager separation in small businesses: (a) owner controlled or (b) manager controlled. The second variable was the structure of IT governance in the businesses: (a) centralized; (b) decentralized; (c) federal; or (d) none. The targeted population consisted of owners and managers in small, privately held businesses in New Jersey with North American Industry Classification System (NAIC) codes identifying them as manufacturers (codes beginning with 31, 32, or 33). Targeted businesses were those that (a) had 250 or fewer full-time employees, (b) had gross annual revenues less than $5 million, and (c) were privately owned.

Findings from the research may add to the body of knowledge on IT governance in small businesses, an area that has received little scholarly attention. In the research results, I produced information that could lead to more efficient and effective structure of IT governance in small businesses, resulting in small businesses better aligning IT with their business strategies. Small business owners and managers could use the research results to help lower operating costs, reduce the opportunity for fraud and waste, and

improve competitive advantage. Social benefit could arise from improved profitability and growth of small businesses.

Nature of the Study

I chose a quantitative correlation design for this study. The quantitative approach supports the positivist philosophy, which states phenomena should be objectively measured (McGregor & Murnane, 2010). Positivism adheres to the epistemology that phenomena are objective entities and that the extent of associations among entities can be measured (Westerman & Yanchar, 2011). Positivists also presume regularity between causes and effects of phenomena (Donaldson, Qiu, & Luo, 2013; McGregor & Murnane, 2010). The study also aligned with the explanation of descriptive correlation research (DCR) outlined by Radhakrishna, Yoder, and Ewing (2009). Descriptive correlation researchers attempt to explain or predict the relationships between variables through various forms of statistical analysis.

Qualitative researchers focus on the philosophy of phenomenology, which addresses how people experience and give meaning to life events (Alise & Teddlie, 2010; Westerman & Yanchar, 2011). Thus, qualitative research methods require subjective analysis of the meaning of words and experiences rather than on objective measurement of phenomena (Harrits, 2011). Qualitative researchers incorporate the belief that knowledge can result from observations of reality (Dumay & Rooney, 2011). A goal of qualitative methodology is to create an understanding of the research data as the analysis proceeds (Westerman & Yanchar, 2011; Yin, 2009), enabling the qualitative researcher to modify the scope and substance of the research while it is in progress.

A limitation inherent in qualitative research is the subjectivity of the data offered by research participants (Yin, 2009). A researcher's subjectivity also enters into the qualitative methodology because researcher bias affects the objectivity of the analysis (Yin, 2009). In some cases, quantitative researchers employ the social constructs identified subjectively during qualitative research (Alise & Teddlie, 2010). Because this research was designed to generate information to examine objective correlations between owner-manager separation and IT governance structure in small businesses, the qualitative approach was not the optimum methodology for the study.

Mixed methods research includes aspects of both quantitative and qualitative approaches. Mixed methods offers the best methodology for obtaining a rich, broad understanding of the facts obtained from the research results (Feilzer, 2010). A mixed methods approach can enrich quantitative data with interviews, observations, and examinations of related documents to provide context and deeper meaning to the data (Leech, Dellinger, Brannagan, & Tanaka, 2010). Alternatively, designers of mixed methods studies may subject qualitative data to quantitative analysis techniques to derive associations among data that may not be readily apparent from pure qualitative analysis. Thus, designers of mixed methods research methodology exploit the strengths of both qualitative and quantitative research methodologies while minimizing the weaknesses inherent in the two (Alise & Teddlie, 2010; Harrits, 2011).

I used the research question to decide the selection of the research method. While the mixed methods approach provides for a rich body of research results, it was not optimal for this research because the research purpose was only to examine the

association among variables, if any. The research purpose was not to determine *why* the association is (or is not) present. With its emphasis on determining the meanings of experiences, phenomenology does not provide processes for determining explanations or measurements (Alise & Teddlie, 2010). The case study approach was not optimal for discovering associations because phenomena boundaries are unknown and the context not readily evident (Yin, 2009). Grounded theory methodology, wherein the researcher uses an inductive approach to create a theory (Urquhart, Lehmann, & Myers, 2010), does not apply to the examination of the applied business problem as outlined in the problem statement. For these reasons, I rejected the phenomenological approach for this study.

The best methodology for addressing the research question was quantitative analysis because the goal of the research was to measure the association between two variables – in this case the association between owner-manager separation and the structure of IT governance in small businesses. Correlation analysis enables predictions about the behavior of one variable based upon the value of another variable (Hill, 2010). The quantitative approach was the best method for addressing the research question because the method provides an objective, correlational measure of how small business management structures may relate to IT governance (Radakrishna et al., 2009). The *why* of any correlations discovered in the research can be addressed in future qualitative or mixed methods studies.

I used chi-square statistical analysis to examine associations among the responses to arrive at mathematically valid results from identifying the associations between small business management structure (owner controlled, manager controlled, or both) and the

structure of IT governance (centralized, decentralized, federal, or none). Quantitative research was a valid method to assess the degree of the associations among variables because the designers of quantitative method studies do not manipulate the variables (Hill, 2010). Statistical analysis provides information to examine relationships among variables. The quantitative nature of the research requires automated data analysis tools. I used the SPSS software package for the data analysis.

Research Question

Information from this quantitative study could help in demonstrating the extent and nature of the association between owner-manager separation in small businesses and the structure of IT governance in those businesses. The two variables in the study were the type of owner-manager separation in small businesses (owner controlled or manager controlled) and the type of IT governance structure in the selected businesses (centralized, decentralized, federal, or none). I examined the extent to which the owner-manager separation in small businesses correlates with the structure of IT governance in those businesses. Therefore, the primary research question (PRQ) was the following: To what extent is there a statistically significant association between the type of owner-manager separation and the structure of IT governance within small businesses operating in New Jersey?

Survey Questions

I designed the survey as a series of questions with multiple-choice responses. The design of the survey questions and responses was to elicit objective responses from the

participants. The complete list of survey questions and the responses for each are contained in Appendix F.

Hypothesis

$H1_0$: There is no statistically significant association between the type of owner-manager separation and the structure of IT governance within small businesses in New Jersey.

$H1_a$: There is a statistically significant association between the type of owner-manager separation and the structure of IT governance within small businesses in New Jersey.

Theoretical Framework

The theoretical framework for this study originated from (a) agency theory, (b) stakeholder theory, and (c) resource-based theory. The principal basis guiding this study was agency theory, which describes the associations between business owners and business managers. Since the publication of the theory by Berle and Means (1938), agency theory has emerged as the dominant management paradigm and the foundation underlying modern corporate governance (Hill & Jones, 1992; Lan & Heracleous, 2010).

According to agency theory, business owners engage an *agent* (the manager) to perform services on their behalf (Fama & Jensen, 1983; Gamble, Lorenz, Turnipseed, & Weaver, 2013; Miller & Sardais, 2011). The employment of a manager is the basis for the variable of owner-manager separation used in this study. The agent (manager), in order to provide the services requested by the owners, assumes a portion of the owner's decision-making authority. The decisions include the governance of technology within

the business. The centralization, decentralization, and federalization of IT decision-making authority are the possible values of the variable, type of IT governance, in this study. Agency theorists postulate that owner-agent relationships should reflect an efficient organization of information and risk-bearing costs (Gamble et al., 2013). Agency theorists acknowledge the existence of short- and medium-term market inefficiencies; adjustments to new circumstances are not immediate.

The key principle of agency theory, known as the *agency problem*, is that interests of the owners and the agents naturally diverge because each party has its own best interests to consider (Lan & Heracleous, 2010; Lipartito & Morii, 2010; Shaoul, Stafford, & Stapleton, 2012). Actions taken by the agent that conflict with the interests of the owner result in *agency loss* (Ferguson, Green, Vaswani, & Wu, 2013). Managing the divergence, known as *agency conflict*, is at the heart of governance. Hill and Jones (1992) defined governance as the mechanisms that monitor and control explicit and implicit contracts between owners and agents. Managers, because they control the operational aspects of the business, can filter, restrict, or manipulate the information provided to the owners (Miller & Sardais, 2011), a condition known as *information asymmetry*. Owners will seek to implement some form of monitoring to assure themselves that managers are acting in their (the owners') interests. Owners incur *monitoring costs* to limit the agent from taking opportunistic actions that conflict with owners' goals. Agents, in turn, incur *bonding costs* to limit events (*divergence*) that would harm the owners. According to Hill and Jones (1992), a divergence not covered by bonding costs results in *residual loss*. The sum of monitoring costs, bonding costs,

and residual loss is *agency cost*. Hill and Jones (1992) posed the form of governance selected by the owners is that which has the greatest effect on minimizing agency costs. The form of governance can be centralized, decentralized, or a hybrid of both forms. The correlation study presented here enabled me to capture of the selection of a centralized, decentralized, or federal form of IT governance as the response variable.

An evolution of agency theory is *stakeholder theory*, which posits that other parties besides the business owners have a vested interest in the organization (Adamson, 2012; Jensen, 2010; Lan & Heracleous, 2010; Mainardes, Alves, & Raposo, 2011) and whose interests must be taken into consideration by organization owners and managers. Stakeholder theorists view the organization in a holistic sense, providing benefits for a wide range of parties (the *stakeholders*) who have a vested interest in the organization's growth and success (Cuevas-Rodriguez, Gomez-Mejia, & Wiseman, 2012; Lan & Heracleous, 2010; Parmar et al., 2010). Stakeholders can be parties both inside and outside of the organization such as employees, suppliers, and customers. Stakeholder theorists specify that owners and managers must consider the interests of all parties when formulating business strategies. Wilkin (2012) noted stakeholder input into IT use and deployment is part of the structure of IT governance. Stakeholder theory has been growing in influence due to increased attention given to business morals and community service collectively known as corporate social responsibility (Parmar et al., 2010; Schlierer et al., 2012).

Proponents of agency theory argue that stakeholder theory is a flawed method to determine governance. The main reasons provided for contesting stakeholder theory are

that too many stakeholders exist, their interests may not be critical to the organization, and attempts to satisfy all stakeholders could result in delayed decision-making and loss of strategic focus (Aguilera & Jackson, 2010; Jensen, 2010; Mainardes et al., 2011). For these reasons, the use of agency theory remained as the theoretical foundation for the general governance components of the research.

Resource-based theory states that the business firm is a pool of resources (products, services, people, plant, equipment, etc.) used to create competitive advantage (Barney, 2012). Resources alone do not lead to superior economic performance, but business executives can create business strategies for adapting and applying their firm's resources to create economic value that competitors cannot match. Resource-based theory is an applicable topic in the area of IT governance, where gaining sustained competitive advantage can result from effective use of a firm's IT resources. McSweeney (2011) explored the resource-based theory as one of the drivers in aligning IT investments with business strategies to deliver competitive performance. Because resource-based theory does not focus on the separation of ownership and management in the decision-making process, the theory does not have primary importance in this study.

Definition of Terms

Agency conflict: The condition where the interests of the agent differ from the interests of the owner. Agency conflict is also referred to as *divergence* (Lan & Heracleous, 2010).

Agency cost: The total costs incurred by the owner associated with monitoring and managing agency conflict (Cuevas-Rodriguez et al., 2012).

Agency loss: A condition that occurs when the agent pursues interests in conflict with the desires of the owner (Ferguson et al., 2013)

Agent: A party engaged by a business owner to perform services on the owner's behalf. The services involve delegating some of the owner's decision-making power to the agent (Hill & Jones, 1992).

Bonding costs: The costs incurred by an agent to limit actions that would harm the business owner (Hill & Jones, 1992).

Centralized IT governance: The structure whereby designated corporate IT unit has complete and primary decision-making authority for IT architecture, standards, and application resources for the entire organization (Asante, 2010).

Closely held corporation: A form of business where ownership resides in a small number of shareholders, all of whom have the ability to participate in the organization's management, operations, and planning activities (Nagar, Petroni, & Wolfenzon, 2011).

Correlation: A statistical measure of how closely two or more variables relate (Prematunga, 2012).

Decentralized IT governance: The structure whereby each functional unit within the organization has assumed decision-making authority for their IT infrastructure, standards, and application resources (Asante, 2010).

Divergence: Refer to Agency conflict.

Duality: The condition where the chief executive officer (CEO) is also the chairperson of the board of directors (Tuggle, Sirmon, Reutzel, & Bierman, 2010).

Family-owned enterprise: An organization where all or the majority of shareholders are members of the same family (Nagar et al., 2011).

Federal IT governance: The structure where the corporate IT department as a central unit has decision making authority and responsibility over corporate IT architecture, common systems, and standards decisions while each functional unit has decision making authority and responsibility for application resources. The federal structure is a combination of the centralized and decentralized IT governance structures (Asante, 2010). Another name for federal IT governance is *Hybrid IT governance*.

Information asymmetry: The condition occurring when one party to a transaction has relevant information the other party does not. The condition could be a potentially harmful situation because the party with superior information can take advantage of the other party's lack of knowledge (Lambert, Leuz, & Verrecchia, 2012).

Information system: A combination of computer hardware, communication technology, and software functioning together to store, process, and deliver information related to one or more business processes (Alter, 2013).

Monitoring costs: The costs associated with attempts to limit actions by the agent that are not in the owners' interests (Hill & Jones, 1992).

Owner: A party having a controlling financial stake in a business. The control provides the owner with rights and duties over the organization (Hill & Jones 1992).

Residual loss: The costs of agency divergence not covered by bonding costs (Hill & Jones, 1992).

Resource-based theory: The principle that application of the combination of resources at a firm's disposal can result in competitive advantage (Barney, 2012).

S Corporation: A corporation electing to pass corporate income, losses, tax deductions, and tax credits through to its shareholders for federal tax purposes. Federal taxation of S corporations resembles that of partnerships (USC 1361, 2011).

Small to medium enterprise (*SME):* There does not seem to be any standard definition of SME in the U.S., but most definitions describe an SME as a business with fewer than 500 employees (Pinto, Augusto, & Gama, 2010).

Stakeholder: A party which has established an exchange relationship with the business organization, and who expects information from the organization to monitor whether the organization is satisfying its interests (Hill & Jones, 1992).

Tobin's q: The ratio between the market value and replacement value of the same physical asset. A high Tobin's *q* value sometimes explains the value of good governance controls (Bolton, Chen, & Wang, 2011).

Type I Error: A *false positive* test result indicating a hypothesized effect may exist when in reality it does not (Brown, 2011).

Type II Error: The result of rejecting hypothesized effect even though the effect may exist in reality (Brown, 2011).

Assumptions, Limitations, and Delimitations

Assumptions

The use of a survey to obtain data for analysis incorporates several assumptions. The first assumption was the targeted population was willing to participate in the

research, resulting in a sufficient number of completed, returned surveys to generalize the results back to the overall population of small businesses in New Jersey. An additional assumption was that participants would complete the research survey in a timely manner. Participants received a reminder e-mail during the survey period to mitigate the risk of non-participation.

There was an assumption that responses to the survey questions were accurate and honest. The assumption was the participants' motivation was not to provide responses designed to misrepresent themselves or to mislead me. Another assumption is that participants provided survey answers based upon their true beliefs and not responses the participants believed I wanted (Bennett et al., 2011). *Self-reporting bias* may occur when participants' experiences, perceptions, and work environment influence their survey responses (Leroux, Rizzo, & Sickles, 2012). An assumption was that the design of the survey questions mitigated this issue. An additional assumption was that the survey respondents were capable of understanding the nature of the questions and could provide informed responses. I also presumed the survey participants represented the beliefs and experiences of the general population of small business owners and managers.

Limitations

Research results received from a random sample of survey participants could limit the generalization of results (Borrego, Douglas, & Amelink, 2009; Brown, 2011). A sample of owners and managers in small manufacturing firms located in New Jersey was the origin of the research data. Thus, the sample may not be representative of all small manufacturing firms throughout the United States.

Confirmation bias is the risk of the researcher favoring literature and examination that supports prevailing or preferred scientific opinions (Fanelli, 2010). I addressed this limitation through a comprehensive literature review and inclusion of all test results in this study. As with all surveys, nonresponse bias can affect the total results (Schaeffer & Dykema, 2011). Statistical analysis determined whether the survey results could differ significantly from the total population results due to nonrespondents (Shapiro-Luft & Cappella, 2013).

A limitation of the correlational research in this study was that associations may be illustrated, but causality cannot be determined (Hill, 2010, Prematunga, 2012). The statistical analysis will provide information regarding the associations between separation of ownership and management and the structure of IT governance in small businesses. I will not conclude a specific IT governance structure results from a specified type of owner-manager separation.

The research objective was to examine the extent and the nature of potential associations among variables without considering mitigating factors. A limitation in positivist research occurs when direct observation or measurement of factors in the research hypotheses is not possible (Lach, 2014). The use of a written instrument (the survey) limited the ability to clarify the true intent of respondents' answers.

The participants in this research consisted of the survey respondents and me. I did not consult experts in the fields of IT governance and small business management in the compilation and analysis of the research. Thus, the reader should consider the lack of input from subject matter experts when reviewing the research results.

A limitation of chi-square testing is that the frequencies in each of the cells must be sufficiently large to enable reasonable χ^2 values. Franke, Ho, and Christie (2012) advised that each cell in a contingency table used in chi-square testing must have a value greater than 5. If a cell value had fallen below the minimum value of 5, a Fisher's Exact Test on the survey data would have been generated to augment the chi-square test results. According to Fisher, Marshall, and Mitchell (2011), the Fisher's test has no sample size restrictions and Fisher's test results are comparable to chi-square testing in assessing the null hypothesis.

Delimitations

The research sample was a subset of small businesses within a limited geographic area in the United States (New Jersey) although the majority of the literature review documents were global in nature. The criteria established for sampling limited the research results to owners and managers of small manufacturing businesses within the state of New Jersey. The small businesses in the sample met the criteria of (a) less than 250 employees; (b) annual sales of $5,000,000 or less; (c) NAIC codes starting with 31, 32, or 33 (manufacturing companies); (d) nonpublic businesses; and (e) not a subsidiary or franchise. The research results may not be applicable to all American businesses outside of New Jersey or to non-American business cultures (Po Li, 2010).

The test population consisted of personnel having titles of owner, coowner, proprietor, partner, chief executive officer, chairman, vice chairman, president, chief operating officer, chief financial officer, general manager, senior vice president, and vice president. There may be other personnel with responsibility for IT governance within the

subset of businesses reflected in this research. The research results may not be representative of all personnel charged with IT governance within small businesses.

Significance of the Study

Contribution to Business Practice

IT alignment with business strategy has become a major concern for both technology directors and company executives (De Haes, Haest, & Van Grembergen, 2010). Key business processes have become automated or dependent on IT functionality (De Haes, Van Grembergen, & Debreceny, 2013; Hamdan, 2011). Because technology is now ubiquitous, its governance has increased in importance for business sustainability (Andrade & Joia, 2012; De Haes et al., 2013). IT governance provides a framework to align an organization's IT priorities with its business strategies. Findings from this study could generate information to enable better understanding of how small business owners and managers implement control over the technology environment in their businesses. As a continuation of agency theory research, findings from this study may add to the body of knowledge on small business operations.

The body of literature on IT governance continues to grow as interest in corporate governance has increased. Yet, authors of scholarly articles and doctoral dissertations have cited gaps in IT governance research (Asante, 2010; Hamdan, 2011; Ko & Fink, 2010; Vargas, 2010). Findings from this study may allow me to add to the pool of empirical research on the subject of IT governance.

While there is a large body of extant literature addressing various aspects of small business, the amount of scholarly research on IT governance in small business remains

relatively small (Debreceny, 2013; Hamdan, 2011). Studying how owners and managers in smaller firms govern their IT environments may assist in furthering the understanding of small business adaptation to changing business conditions. The results of the study could help fill a knowledge gap in the body of literature on IT governance and small business management by providing statistically valid information on the relevance of IT governance structures in small businesses.

Implications for Social Change

This research may result in a better understanding of IT governance structure within small businesses, an area that has received little attention in research (Asante, 2010). Investors, management consultants, and researchers could use the information obtained from the study to advise small business leaders on implementing effective IT governance within their businesses. Small business owners and managers could use the study information to enhance their knowledge of IT governance. Efficient and effective IT governance in small businesses could result in more effective and sustainable use of IT through better operational management of the IT infrastructure and application software. The improved operational management of IT in small businesses could lead to increased investor profits, improved competitive advantage, and potential increased employment opportunities (Marks, 2010).

A Review of the Professional and Academic Literature

This quantitative, cross-sectional study provided information on the correlation between the degree of owner-manager separation in small businesses (owner controlled or manager controlled) and the structure of IT governance in those businesses (Asante,

2010; Xue, Liang, & Boulton, 2008). The research question for this study was whether a statistically significant association exists between the type of owner-manager separation and the structure of IT governance within small businesses operating in New Jersey. My results provide evidence supporting or refuting the null hypothesis that there is no statistically significant correlation between owner-manager separation and the structure of IT governance within small manufacturing businesses in New Jersey.

The purpose of the literature review was to provide an in-depth examination of the topics of corporate governance, IT governance, and small business relevant to research into owner-manager separation and IT governance in small businesses. The literature review provided me with an assessment of scholarly research on the theoretical frameworks of agency theory, stakeholder theory, and resource-based theory for their influence on the study of owner-manager separation in small business and their correlation to IT governance structure in small business. The review also included an examination of research into the interrelationships between and among the research topics of corporate governance, IT governance, owner-manager separation, and small business.

The amount of scholarly literature on IT governance has only recently grown. The growth in scholarly research is primarily due to the increased regulatory environment in the global business community and evidence of effective governance adding to an organization's return on assets (Henry, 2010; Yang, 2011). Chung and Zhang (2011) supported the hypothesis that investors are more willing to finance firms evidencing good governance. As a means of organizing the review, I chose a thematic approach to review

the body of extant literature. Initially, I will present a discussion of the literature research strategy. Next, I present a discussion of corporate governance and business governance literature in general. Separate discussions of the literature relating to IT governance and the small business environment complete the literature review.

Literature Research Strategy

The primary sources for the literature review consisted of articles from peer-reviewed academic journals. Doctoral dissertations, professional organization and government websites, conference presentations, and seminal books provided additional literature. I found the majority of journal articles in the Walden University library databases (ProQuest, Sage Publications, Emerald Publications, EBSCOhost, and Science Direct). Searches of Google Scholar sourced additional articles. Database and Google searches to locate articles, books, and online information used the following key words: *governance, corporate governance, IT governance, technology governance, agency theory, stakeholder theory, resource-based theory, owner-manager separation, small business, family business, private business*, and *SME*. From the searches, I reviewed articles on information deemed relevant to the topics of corporate governance, IT governance, and small businesses. The references consisted of (a) 105 articles from scholarly journals (all but one peer-reviewed and 98 published within the past 5 years), (b) nine doctoral dissertations (all but one less than 5-years-old), (c) three subject matter books, and (e) two references from other sources. In total, 106 out of 119 references (89%) in the literature review were peer-reviewed items less than 5-years-old.

Corporate Governance

The amount of scholarly research into corporate governance has increased over the past decade due to increased awareness of its importance (Bebchuk & Weisbach, 2010; Herath & Freeman, 2012). The first issue confronting any researcher in corporate governance is the lack of a universally accepted definition of the term (Aguilera & Jackson, 2010; Chau, 2011; Corina & Roxana, 2011; Sicoli, 2013). The majority of governance definitions derive from agency theory, growing from the seminal works of Berle and Means (1932) and Fama and Jensen (1983).

Governance definitions. Abraham (2010) wrote that corporate governance ensures managers provide their financial suppliers a fair share of profits. Aguilera and Jackson (2010) described corporate governance as the relationship among various participants in determining the direction and performance of the organization. Yang (2011) addressed governance as a tool to address the agency problem. Swamy (2011) provided a similar definition, describing governance as a mechanism for decision-making in the absence of an initial contract (between owner and manager). Sicoli (2013) referenced agency theory to describe corporate governance as limiting the possibility of opportunistic behavior by both owners and managers. Kocmanova, Hrebicek, and Docekalova (2011) described governance as efforts to attain economic efficiency and growth that justifies increased investor trust. Donaldson (2012) described corporate governance as the rules, policies, and institutions that affect how a business is controlled. Shaoul et al. (2012) further defined governance as processes that provide control while promoting economic growth and business performance. The lack of a universally

accepted definition would appear to explain the many research efforts undertaken into identifying and defining governance and the diverse approaches used to study aspects of governance.

The ongoing financial crises affecting global businesses since the 2000s have resulted in negative affects far beyond the original firms that precipitated the crises. As a result, management thinking has begun to sway from pure agency theory towards stakeholder theory. Thyil and Young (2010) argued that agency theory, with its emphasis on maximizing shareholder returns, does not provide the ethical and transparency requirements needed to govern a business through a crisis. Taking a similar stakeholder-based view of corporate governance, Chau (2011) described governance as ethical based direction and management. Nanka-Bruce (2009) referred to governance as the structure of rights and responsibilities of different stakeholders within the firm and with vested interests outside the firm. Herath and Freeman (2012) noted a singular focus on shareholder wealth maximization could hinder an organization's competitiveness. Another definition from Lan and Heracleous (2010) includes agency, stakeholder, and resource-based theory, describing governance as the deployment of organizational resources to resolve conflicts among the organization's participants. The definition regards IT as a strategic resource managed to achieve synergy among business components. Increased synergy would assist a business in achieving its strategic goals.

The evolution of governance. Business executives often confuse governance with management when, in fact, governance is distinct from the management process (Lunardi, Becker, Macada, & Dolci, 2013). Management focuses on internal control of

services at the departmental level while governance occurs at the corporate level and focuses on enterprise-wide planning and monitoring (Lunardi et al., 2013). The governance process evolved from agency theory, where business owners (principles) have a need to monitor the performance of agents (management) retained to serve ownership interests (Berle & Means, 1932; Fama & Jensen, 1983; Hermalin & Weisbach, 2012; Lan & Heracleous, 2010; Lipartito & Morii, 2010). Both agency theory and stakeholder theory regard managers and directors as stewards for the owners (Abraham, 2010). Agency theorists postulate that organization managers (the agents) can use their control of information to exploit or mislead owners (Miller & Sardais, 2011; Wong, 2011). Corporate governance deals with constraints that business owners put on managers and constraints that managers put on themselves to reduce the agency problem (Chung & Zhang, 2011) and prevent owners from expropriating the organization's wealth (Abraham, 2010). The constraints can consist of limits to managerial decision-making authority, performance-based compensation schemes for managers, and performance-monitoring mechanisms to assure managers are making decisions in the owners' best interests (Fama & Jensen, 1983; Hermalin & Weisbach, 2012; Lipartito & Morii, 2010).

Nanka-Bruce (2009) explored governance practices in the U.S. and Europe and noted most governance practices are reactionary. Nanka-Bruce postulated that growth in governance tends to occur when a crisis points toward the need for increased business oversight. Morck and Steier (2005) noted the natural bias against change abates when a crisis occurs, allowing the changes to occur. Aguilera and Jackson (2010) noted that global economic and political pressures serve to influence governance evolvement.

Crittenden and Crittenden (2012) echoed this theory. Adamson (2012) noted the recent spate of corporate governance reforms rising from the financial crisis of the early 21st century. Validation of the theories of Morck and Steier (2005), and Aguilera and Jackson (2010) came with the adoption of sweeping laws and guidelines as a response to widespread failures in corporate governance in the past 20 years. As shown in Table 1, economic crises in recent history have resulted in adoption of new regulations, standards, and guidelines designed to strengthen corporate governance practices.

Governance structure. A critical research variable in this study was the structure of governance, and IT governance in particular. Several contextual factors influence the structure and nature of corporate governance. The contexts are political, social, judicial, administrative, financial, and economic (Wintoki, Linck, & Netter, 2012). Each of the contexts exerts influence that shapes the framework of corporate governance within a given organization. Over the years, the influences of the contexts have resulted in the emergence of two distinct generic frameworks for corporate governance. One framework, known as the American or Anglo-American model, is prevalent in businesses based in the United States and the United Kingdom (Aguilera & Jackson, 2010; Robertson, Diyab, & Al-Kahtani, 2013). The American model forms its basis in agency theory with the goal of protecting the financial interests of the organization's shareholders. Both the United States and the United Kingdom foster business environments based on dispersed ownership, strong shareholder rights, flexible labor markets, active capital markets, and dependence on short-term equity financing (Aguilera & Jackson, 2010; Yang, 2011). The American model also adopts a process of mandatory

compliance with governance regulation, enforced through regulatory review (Bart & Turel, 2010; Yang, 2011).

Table 1

Significant Economic Events and Resulting Actions to Strengthen Governance

Date	Event	Resulting action
1992	Lack of financial transparency leading to the unexpected collapse of several major businesses, coupled with lack of Board of Directors accountability.	Cadbury Committee Report (U.K.)
1999 and 2004	Increasing complexity in financial reporting of global business transactions.	OECD Principles
2002	Widespread manipulation of financial performance results, excessive executive compensation, conflicts of interest within Board of Directors, lack of Board of Directors' attention to financial statement integrity.	Sarbanes-Oxley Act (U.S.)
2010	Worldwide recession caused by lack of credit resulting from collapse of the U.S. real estate market.	Dodd-Frank Act (U.S.)

In a study of MENA (Middle Eastern and Northern African) small business governance, Zekri (2012) found the prevalence of the American model, albeit with some minor modifications to account for local cultures. Robertson et al. (2013) noted most developing countries have adopted the Anglo-American model of governance to better align their emerging businesses with global business structures. It is reasonable to presume the American governance model is the most widely seen form of corporate governance throughout the globe.

The European governance model is prevalent in European and Asian businesses (Kocmanova et al., 2011; Yang, 2011). Non-U.K. European and the majority of Asian businesses tend to operate in an environment of concentrated block ownership, weak

shareholder rights, rigid labor markets, and a dependency on long-term debt financing (Aguilera & Jackson, 2010). Laws protecting shareholder interests are weak in non-U.K. European and Asian nations. Thus, the European governance model stresses protection of the interests of not only the stockholders but also all the organization's stakeholders. The European model also favors a voluntary approach to compliance with governance regulations (Yang, 2011) rather than forced compliance through statutory mandates.

Stewardship. In agency and stakeholder theory, senior business management functions as the agent for the shareholders (the business owners), running the business with the goal of returning profits to the shareholders. The shareholders entrust oversight of senior management to an independent group, the Board of Directors (Herath & Freeman, 2012). The board acts as the steward for the shareholder's investment in the company by acting as a control and a monitor over management (Herath & Freeman, 2012; Zekri, 2012). When the board exercises its responsibilities, it assumes both management and control functions. Shareholders expect board members to guide the organization's strategy, oversee risk management, structure executive compensation, plan for management succession, and measure management performance against predetermined goals (Herath & Freeman, 2012; Wong, 2011). Over time, board responsibilities have also expanded to consider other stakeholder interests (Herath & Freeman, 2012).

Governance effectiveness. An ongoing question in the literature is how to measure the effectiveness of governance in business organizations. Researching this

question was beyond the scope of this study, but a discussion of the subject provides context to the discussion on corporate governance.

It is easy to state that company performance is the best indicator of governance effectiveness. Conventional wisdom equates a profitable and thriving business organization with sound management, which is also an indicator of good governance. Quantitative research by Oswald, Muse, and Rutherford (2009) found an inverse relationship between owner control and business performance. The research indicated the need for business owners to separate their ownership privileges from management responsibilities. The separation occurs through the hiring of professional managers (agents). Agency theorists hypothesize an organization's overall performance increases in proportion to the degree of control by those with decision-making authority (Fama & Jensen, 1983; Oswald et al., 2009). The question arises as to how the owners can best monitor the performance of the manager. The question takes on greater importance in this study because small business owners generally take an active part in daily business operations (Wellalage & Locke, 2011), resulting in the functions of owner and manager vesting in one person.

Both agency theorists and stakeholder theorists hold that monitoring business management is the primary function of the Board of Directors (Herath & Freeman, 2012; Tuggle et al., 2010; Walkling, 2010). Therefore, governance effectiveness can also be an indicator of the effectiveness of the Board of Directors' efforts at monitoring management (Tuggle et al., 2010). In a study of board composition and owner-manager separation, He and Sommer (2010) noted the number of outside directors tended to

increase as firms grew larger. The researchers concluded their results indicated agency costs increased as firms grow larger and as the separation widens between owner and manager. According to He and Sommer, the increasing agency costs spur the retention of outside directors to provide impartial monitoring of the agent.

Tuggle et al. (2010) found boards use business performance as a proxy for management effectiveness. However, in an examination of board meeting minutes from numerous companies, Tuggle et al. (2010) also found board members were not consistent in their monitoring efforts, especially after a positive deviation from prior business performance. The authors also noted CEO *duality* (when the CEO is also board chair) has a noticeable effect on board member attention to monitoring (Tuggle et al., 2010). The research appears to indicate the monitoring aspect of governance is inconsistent across businesses.

Performance is, to some extent, the result of each business' appetite for risk-taking. Governance practices instill the due diligence and monitoring processes required for managing and monitoring business risks. A study of property-casualty insurance firms with various management structures found closely held firms are more risk-averse and widely-held (publicly traded) firms more accepting of risk (Cole, He, McCullough, & Sommer, 2011). The authors viewed their study results as evidence of business agents (managers) making critical business decisions in the absence of direct control by the business owners. Because the majority of U.S. small businesses are closely held firms (Nagar et al., 2011), the effects of ownership acceptance of risk may play an important role in the governance structures within these firms.

Herath and Freeman (2012) found while evidence exists showing the positive effects of monitoring management activities, other research indicating a lack of effect casts doubt upon the conclusiveness of governance effects on firm performance. Still other research concluded firms with greater shareholder rights performed better than firms with less shareholder rights when compared on sales, return on assets and return on equity (Chugh, Meador, & Meador, 2010). The authors included a caveat that economic volatility may affect performance. Further research is necessary to provide definitive answers to questions regarding governance versus firm performance. The research could fill part of a knowledge gap by providing a quantitative analysis of how the governance of small business technology relates to the structure of management.

Tools for measuring governance. To address the rising need for governance information, several companies now offer commercially available ratings of corporate governance for individual firms. The ratings, in the form of a numeric score or letter grade, provide information to shareholders and other interested parties on how well corporate governance within individual companies measures against predetermined rating criteria. Governance ratings providers obtain information from stock market history, financial statements and regulatory filings, company web sites, and news services (Daines, Gow, & Larcker, 2010).

Outside parties are now using governance scores as a tool to assist in making business investment decisions (Daines et al., 2010). In this scenario, a high corporate governance score equates to evidence of effective governance. A low score is an indication of weakness in governance – a red flag for company directors and potential

investors. It would appear the ratings offer a convenient method of determining the spread and effect of corporate governance. However, in a quantitative analysis of governance ratings against later financial and operational performance, Daines et al. (2010) found no relationship between current governance ratings and future credit worthiness and operational efficiency. Later research by Amman, Oesch, and Schmid (2011) contradicted Daines et al.'s (2010) research when the authors found a positive correlation between governance and firm valuations. Based on results from both studies, there is a presumption that any rating of corporate governance effectiveness occurs at a point in the past or present time and may not reflect actual organizational performance in the future.

In a different study, Bebchuk and Hamdani (2009) asserted governance metrics are often misleading because the metrics do not take into account various ownership structures that may affect the governance process. Their examination of the ratings processes used by several agencies found examples of governance ratings focusing almost exclusively on publicly traded firms. The authors also found ratings did not account for variables such as controlling shareholders. Arslan and Staub (2013) noted the difficulty in obtaining financial performance data from small businesses, which tend to be privately owned firms. Bebchuk and Hamdani suggested developing separate methodologies for assessing governance based on business structure to provide a more accurate picture of a firm's corporate governance.

In a study of how focus on governance relates to governance quality scores, Franck and Sundgren (2012) found a positive relationship between governance quality

and dispersed ownership. Their finding supports basic agency theory, which states that dispersed ownership results in a higher level of controls and reporting (Fama & Jensen, 1938). In addition, Franck and Sundgren noted companies forced to adopt governance controls (to comply with government mandates) have better governance quality than those companies not required to have governance controls. The same study also noted companies with high leverage have lower governance quality. The condition appears to contradict agency theory, which postulates that both owners and managers have incentives to manage finances. Franck and Sundgren did not explain this deviation from agency theory.

The question arises as to whether the spread of governance policies and practices has resulted in more transparent business operations. The answer is outside the scope of this research, but Robert Monks, a noted shareholder activist, recently lamented that the overall effect of governance efforts has been for naught as businesses continue to operate with fiduciary conflicts between shareholders and managers (Monks, 2010).

Summary. Corporate governance is attracting increased attention from business leaders and academic researchers as the need for increased vigilance of business management continues to manifest. The Anglo-American model of governance serves both agency theory and stakeholder theory by empowering an independent body (the Board of Directors) to monitor and control the activities of business management on behalf of the business owners. The emergence of commercially available governance ratings indicates the market for information on business governance is strengthening, even though questions exist on the validity of the ratings. The extant literature on the

effects of governance on firm performance show mixed results, partially due to the many contexts and nuances inherent in the business world. The results of this study may help further define and validate the roles of governance and management in the small business environment.

IT Governance

IT governance grew out of corporate governance into a distinct subset of corporate governance concerned with the management of information and technology (Joshi, Bollen, & Hassink, 2013; Prasad, Heales, & Green, 2010; Van Grembergen & de Haes, 2010). As is the case with corporate governance, the first aspect in the body of literature confronting a researcher is the lack of a universally accepted definition of the term *IT governance* (Jewer & McKay, 2012; Mohamed & Singh, 2012). The early view of IT governance was that it existed to provide rules and procedures for making and monitoring decisions affecting only IT operations. Thus, early definitions tended toward an agency-based theory of defining IT governance as a process for managing and monitoring an organization's IT investments and infrastructure (Ferguson et al., 2013; Marks, 2010).

Over the years, definitions of IT governance favored agency theory to focus attention on aligning IT operations with the organization's strategies. In separate articles, Marks (2011) and Van Grembergen and de Haes (2010) stated IT governance should be seen as focusing attention on ensuring IT delivers value to the organization. The organization's IT strategy outlines the method for delivering value from IT. Proper IT governance theory asserts the IT strategy should complement and abet the organization's

business strategy (Al-Zwyalif, 2013; Chen, Mocker, Preston, & Teubner, 2010). Indeed, Chen et al. (2010) posited the IT strategy should be an integral part of the business strategy and not viewed as a standalone effort. Huang, Shen, Yen, and Chou (2011) took a stakeholder view of IT governance, describing it as a process to regulate IT to meet present and future demands of the business and its customers. Lorences and Avila (2013) wrote that a special aspect of IT governance is its consideration of all stakeholders.

The corporate management scandals of the 1990s and the resulting push for increased corporate accountability reinforced the agency theory based theme of IT governance (along with corporate governance) as an alignment, control, and monitoring vehicle. Within the past few years, as technology has become ubiquitous and more complex within organizations, the theory of IT governance as a business management and planning process and a framework for providing business enabling support has gained acceptance (Ferguson et al., 2013; Simonsson, Johnson, & Ekstedt, 2010; Wilkin & Chenhall, 2010). McSweeney (2011) provided a summary of the modern view of IT governance as a business enabler when he described IT governance drivers as shown in Figure 1. Note the drivers do not relate to specific technologies, but rather the use of technology resources to assist the business in meeting its strategic goals.

The Drivers of IT Governance

- The push for competitive advantage through effective use of IT and the information that IT generates.
- The need to align technology projects and investments with strategic business goals.
- Response to IT risks, both internal and external.

- Growing regulatory requirements.
- Increasing compliance obligations.

Figure 1. Drivers of IT governance. Adapted from "Practical Information Technology Governance" by A. McSweeney, 2011, p. 5. Permission for use appears in Appendix A.

IT governance frameworks. Many scholars view the seminal work of Weill and Ross (1994) as the catalyst for promoting effective IT governance structure (Thomas, 2010). Over the past 20 years, several IT governance frameworks have gained widespread acceptance (al-Zwyalif, 2013). Perhaps the most widely known and used is COBIT, the Control Objectives for Information Technology (ITGI, 2012) from the Information Technology Governance Institute, a subgroup of the Information Systems Audit and Control Association (ISACA). ISACA continuously updates COBIT (the latest version is COBIT 5, released in June 2012) to address changes in the technology environment (Ko & Fink, 2010). COBIT focuses on aligning IT with business goals while mitigating IT risks (De Haes et al., 2013; ITGI, 2012; Lorences & Avila, 2013). To do this, COBIT organizes IT into a series of four domains consisting of 34 high-level processes and 210 control objectives (Huang et al., 2011).

COBIT's popularity is due in part to its generic structure, which allows the framework to be adapted by organizations with both simple and complex technology infrastructures (ITGI, 2012). However, critics state this *one size fits all* approach to IT governance does not allow for the nuances found in individual organizations (Vargas, 2010). Critics also claim COBIT favors larger organizations (Devos et al., 2012) which have the resources to segregate operational, management, and monitoring responsibilities, a condition not found in small businesses.

Another well-known and widely used IT governance framework is the IT Infrastructure Library (ITIL), developed in the 1980's by the U.K. Office of Government Commerce. ITIL is primarily an IT service management framework, offering a lifecycle approach to IT service delivery (Ko & Fink, 2010; Wilkin & Chenhall, 2010). Still other well-known but lesser-used IT governance frameworks are the International Standards Organization standard 38500:2008 (Lorences & Avila, 2013; Wilkin & Chenhall, 2010), the Calder-Moir IT Governance Framework, and the IT Governance Institute's ValIT (ITGI, 2008). Each of these frameworks approaches governance from a specific perspective, instead of the generalist approach offered by COBIT and the service orientation offered by ITIL (Ko & Fink, 2010). Although the different frameworks approach IT governance from different perspectives they all have a similar goal of ensuring the alignment and performance of IT in accordance with the strategies designed by management.

IT governance structure. In their review of IT governance literature, Wilkin and Chenhall (2010) noted that IT is no longer merely a tool to assist business, it is now the sole support for primary processes used in most businesses and cannot be governed in isolation. In addition, Wilkin and Chenhall's review of research found the growing complexity of IT increases the difficulty in its management. Business executives may not be aware of and be prepared to manage the increased complexity of IT. Thus, all business stakeholders and IT management require IT governance to ensure IT resources are effectively and efficiently managed (Prasad et al. 2010). In most organizations, a steering committee comprised of high level business and IT executives carry out the IT

coordination and collaboration function (Ferguson, et al., 2013; Prasad et al., 2010). The steering committee meets periodically to examine the organization's business strategy and to prioritize IT projects and budget to meet strategic goals. The composition of the steering committee and the committee's influence on IT decisions and strategy depends on the IT governance architecture adopted by the organization.

Studies of IT governance implementations have identified three distinct structural models: centralized, decentralized, and federal (Asante, 2010; Ko & Fink, 2010; Prasad et al., 2010; Xue et al., 2008). Many contexts determine the model used within an organization. The contexts include the organization's management structure, size, control environment, culture, and financial condition. In this study, I examined whether there is any correlation between these structures and the degree of owner-manager separation within small business organizations.

The centralized model occurs when IT decision making authority rests with the organization's CEO, the Board of Directors, or a small group of senior executives. The top-down approach to IT governance establishes organization-wide policies, budgets, and operations for use of IT (Xue et al., 2008). Decentralized IT governance occurs when individual business unit managers assume responsibility for decisions affecting the IT usage in their departments (Asante, 2010). Federal, or hybrid IT governance occurs when individual department managers retain some decision making authority over their IT environment, with centralized business management responsible for overall IT policy making, major IT purchasing, and operating common IT infrastructure components (Asante, 2010).

Not surprisingly, a multiple case study review by Ko and Fink (2010, p. 668) found senior executives preferred the centralized IT governance model over the decentralized and federal models. In another multiple case study, Xue et al. (2008) noted senior managers viewed both decentralized and federal IT governance structures as weakening their control over the organization's IT. McElheran (2012) wrote of decentralized IT leading to increased IT costs and the tendency of executives to blame poor IT performance on lack of centralized control. Huang et al. (2009) found McElheran's viewpoint reflected in prior qualitative studies (primarily case studies and interviews) where previous researchers indicated decentralized and federal IT governance structures tended to concentrate more on departmental IT strategy rather than the overall organizational strategy. Xue et al. (2011) argued that uncertain business environments lead to decentralized IT governance, but as uncertainty increases the governance swings back to the centralized model. The argument corresponds with agency theory, which states uncertainty increases centralization (Fama & Jensen, 1983).

Several recent studies have noted a disconnect between existing IT governance frameworks and the IT governance practices followed in small businesses. Devos et al. (2009) wrote that the design of IT governance theories skews toward larger firms and cannot be directly extrapolated to small businesses. In a later article which followed up on their original research, the same authors noted a lack of IT governance theories specific to small businesses (Devos et al., 2012). The authors, through a literature review, found existing IT governance theories seemed to fail in small businesses when subjected to scholarly analysis. They attributed their findings to the simpler, more

centralized, and informal control mechanisms prevalent in small businesses (Devos et al. 2012). The research by Devos et al. corresponds to research by Terziovski (2010) who noted small businesses tend to be function-oriented, a structure favoring centralized control. Results of this research may provide additional information on the type of IT governance model preferred in small manufacturing businesses.

IT governance effect on business performance. Modern business executives and scholarly researchers agree that the main goal of IT governance is to align technology to support the attainment of business goals (Ferguson et al., 2013; Luftman, Ben-Zvi, Dwivedi, & Rigoni, 2010). Such a resource-based outlook views IT as a resource which can add value to the organization if properly used. A survey by Tallon (2012) disclosed good IT-business alignment positively affects the entire value chain. Yet most research into the subject consists of surveys which have noted IT-business alignment is still an ongoing issue (Vithayathil, 2013).

Why is IT-business alignment so difficult to attain? Tallon (2012) posited one reason may be the difficulty of measuring the value created by the alignment throughout the value chain. Luftman et al. (2010) noted while the focus of IT governance is aligning IT with business, in many cases IT has become the business. Mohamed (2012) referred to *information intensive* businesses as those which are dependent upon IT to support core business operations (e.g., telecommunications and banking). Such businesses call for aligning business with IT, a concept not readily accepted by business executives. Other reasons found for lack of IT-business alignment were differences in what constitutes alignment, the lack of standardized alignment measurement criteria, lower acceptance of

new technology by business executives, inadequate IT expertise, and a lack of perceived benefits (Luftman et al., 2010; Mohamed & Singh, 2012). The lack of perceived IT-business alignment benefits may be traced to a paucity of research into how alignment affects business performance.

Luftman et al. (2010) found most of the existing research on IT-business alignment focused only on measuring various levels of alignment. De Haes and Van Grembergen (2010) found little empirical research done to validate whether IT governance practices lead to better business performance. In their 2010 research paper, De Haes and Van Grembergen attempted to measure the link between IT governance practices outlined in the COBIT framework and business performance. Analysis of their structured e-mail survey of 158 global participants failed to indicate a strong correlation between adherence to IT governance practices and business performance. On the other hand, research by Jewer and McKay (2012) on Canadian businesses found adherence to IT governance policies by Boards of Directors had a positive effect on firm performance. Further research in this area is called for to validate which of the conflicting research results is applicable to small businesses.

Usher (2010) conducted a multiple case study of technology implementation and found IT governance is one of several key factors influencing technology implementation. Usher noted effective IT governance provided the studied companies with the structures and processes to ensure business management was engaged and accountable for IT operations. The research results indicated that while IT governance does not guarantee successful IT-business alignment and effective technology

management, it does ensure proper management planning and allocation of resources that mitigate the risk of IT failure.

There is little research on the involvement of Boards of Directors in monitoring IT governance (Jewer & McKay, 2012). Bart and Turel (2010) wrote most extant research tended to focus on business manager monitoring of IT governance and not on the role of boards in the monitoring process. In their review of board meeting minutes, Bart and Turel (2010) found boards asked questions related to IT and IT governance infrequently, and such questions were asked by less than 50 percent of board members. The authors' conclusion was awareness and effectiveness of IT governance was related to level of board attention paid to the topic. The conclusion was supported by the research of Jewer and McKay (2012), who surveyed 188 board directors in Canada and noted that board attributes (i.e., IT knowledge, attention to IT matters) affected the level of IT governance. Jewer and McKay's research also found the level of IT knowledge among board members influenced the members' attention to IT matters.

Summary. IT governance is continuing to evolve as governance processes mature and the value of governance practices becomes more accepted. IT governance must also adapt to the continuous changes that mark modern technology. Some technology changes (such as the Internet and subsequent growth of e-commerce) are destructive and result in radical changes in organization structures and business strategies. Various IT governance frameworks exist, but the ultimate design and implementation of IT governance within a business is dependent upon organizational structure and related contextual factors.

Despite the existence of various IT governance frameworks and research indicating the positive effect of IT governance on technology management, evidence indicates IT-business alignment based on governance principles remains difficult to achieve. The condition is partially due to insufficient research efforts into the effects of IT-business alignment on business performance. The small body of existing IT governance research has not shown conclusive evidence of a positive correlation between IT governance and business performance. It is hoped this research effort will provide additional information which can be used to further assess the effect of IT governance on small business performance.

IT governance structure and practice in small businesses have shown to be different from those in larger businesses. Research has indicated that existing IT governance frameworks may not readily accommodate the unique structural characteristics of small businesses. Results of this research may provide additional information that could be useful in determining which form of IT governance is best suited to the unique requirements of small businesses.

Small Businesses

Small businesses represent a vibrant and essential component of economic activity. Small businesses are one of the main drivers of entrepreneurship, job growth, and innovation in the global economy (Cole, 2013; Neumark, Wall, & Junfu, 2011; Stefanovic & Milosevic, 2011). Their small size helps make them quicker to react to market changes than their larger competitors (Barabel & Meier, 2012). Research has shown small businesses tend to have closer relationships with their customers and

suppliers, another asset in the fight for competitive advantage (Berte et al., 2010). The business processes used in small businesses tend to be more flexible and adaptable than the more rigidly structured processes found in larger businesses (Devos et al., 2009). Terziovski (2010) wrote that organizational flexibility is a source of competitive advantage small businesses have over larger firms. Such flexibility can also be a hindrance to successful IT governance because of the overlap between ownership and management (Pittino & Visintin, 2011).

Commonalities. Research by various scholars (e.g., (Ahmad, Ahmad, Kahut, & Murtaza, 2012; da Conceicao, 2012; Garcia, Diaz, & Duran, 2012; McLarty, Pichanic, & Srpova, 2012; Sicoli, 2013; Wellalage & Locke, 2011; Wilkin, 2012) revealed small businesses in general tend to have certain common characteristics affecting their governance and management structures. These common factors include limited resources, limited financing opportunities, lack of managerial talent, a low level of technology awareness and usage, and high sensitivity to market conditions (Ahmad et al., 2012; da Conceicao, 2012; Garcia et al., 2012; McLarty et al., 2012; Sicoli, 2013; Wellalage & Locke, 2011; Wilkin, 2012). The small business owner, even with extensive business experience, may have knowledge gaps in critical business areas (Gamble et al., 2013; Hang & Wang, 2012; Seo, Perry, Tomczyk, & Solomon, 2012). Due to staffing limitations, small businesses tend to employ generalists instead of specialists and the organizational structure tends to be less formal (Terziovski, 2010). Due to their smaller size and flatter organizational structures, small business processes tend to be less formal and structured than processes in larger businesses (Devos et al.,

2012). The combination of generalists on staff, flat staff structure, and informal operational processes make segregation of responsibilities difficult. Small businesses also tend to employ simpler and more informal internal control configurations than found in larger firms. Qualitative research has shown small businesses rely on their rich information networks and flatter organizational structures to spread and enforce their cultural and business norms (Arvind et al., 2010; Huang et al., 2009; Schlierer et al., 2012).

Partly resulting from the informal organizational structure, small businesses tend to have centralized decision-making structures, with the CEO making most of the critical decisions (Arvind et al., 2010; Devos et al., 2012). Small business owners tend to play a major role in the daily management of their businesses (Wellalage & Locke, 2011). Research by Lindgren (2012) on innovation management in the SME environment supported the contention that small business management tends to be reactive in nature, focused primarily on satisfying user demands. Business planning and decision making in small businesses tend to be more task-oriented than strategic (Devos et al., 2009; Terziovsky, 2010; Wilkin, 2012) due to management's focus on short-term survival. In a review of small businesses in Portugal, da Conceicao (2012) noted the lack of strategic planning prevalent in smaller firms.

Financing. As stated earlier, difficulties in obtaining credit often hampers small business financing (Jasra, Khan, Hunjra, Rehman, & Azam, 2011). Stefanovic and Milosevic (2011) documented lack of financial resources as the main hindrance to small business success. Financial information on privately held businesses is difficult to obtain,

making it problematic for banks to identify and quantify lending risk (Arslan & Staub, 2013; Pinto, Augusto, & Gama, 2010). Most small businesses in the U.S. fund their capital needs through simple borrowing from local banks (Cole, 2013). Small business executives tend to rely on longstanding relationships with a small number of funding institutions to foster lower borrowing costs and better credit conditions (Pinto, Augusto, & Gama, 2010).

There is growing evidence showing financial institutions measure governance as a criterion for extending credit to small businesses. In a study on the relationship between banking and corporate governance, Chi and Lee (2010) researched bank lending processes for small businesses and found financers use governance as one of many criteria to determine business credit worthiness. The authors noted the perception of agency conflict resolution (as measured by free cash flow) was a factor in the financer's rating of small business credit quality. Chi and Lee concluded higher firm value is a result of governance quality. A similar study of small Finnish businesses by Niskanen and Niskanen (2010) found banks consider the agency costs of owner-manager separation when making lending decisions. Although one must consider differences between U.S. and Finnish banking environments, agency costs are probably assessed by U.S. banks when deciding whether to lend to small businesses.

Technology expertise. Prior research, attained through qualitative processes, has shown both management and employees of small businesses tend to have a low level of IT awareness, experience, and expertise (Berte et al., 2010; Devos et al., 2009; Hang & Wang, 2012; Huang et al., 2009). Wilkin (2012) surveyed 156 Australian small

businesses and found most of them did not employ a dedicated technology specialist. In a study of 50 Czech SMEs, McLarty et al. (2012) found half of the businesses did not have a management information system.

Ali, Green, and Robb (2013) noted a high level of IT governance knowledge is a critical factor in governance effectiveness. The lack of technology expertise, time, and staff necessary for proper IT planning and management often results in small businesses being slow and reactive in adopting technology (Dai, 2010; Elmazi, Vukaj, Gega, & Elmazi, 2011). The contexts explain the tendency by small business management to adopt the lowest cost IT service, regardless of whether the lowest cost is the best solution (Devos et al., 2009). As a consequence of the lack of resources and poor awareness of IT, small businesses experience difficulty attracting and retaining IT staff due to salary constraints, career limitations, and lack of intellectual challenges (Huang et al., 2009). Small businesses also demonstrate a reluctance to use advanced IT and tend to depend more on outside vendors for IT services because they lack requisite in-house assets (Dai, 2010). The use of third party software and external IT service providers is widespread in small businesses (Viljamaa, 2011). Use of externally managed software and services creates additional governance concerns because the activities of the external providers require monitoring to ensure they are delivering the expected value to the business.

Market influence. Due to their small size, limited purchasing power, and lack of financial resources, individual small businesses hold very small market share in their respective industries. As such, they are less able to influence product pricing and service offerings in the marketplace (Huang et al., 2009; Stefanovic & Milosevic, 2011). Not

having diversified products or service offerings, financially constrained, and unable to influence pricing, small businesses are also prone to quicker and deeper affects from adverse market conditions than their larger counterparts (Stefanovic & Milosevic, 2011).

Separation of ownership and control. Almost 99% of small businesses in the Unites States are closely held corporations, with most being family-owned enterprises (Nagar et al., 2011; Liu, Yang, & Zhang, 2010). Wellalage and Locke (2011) supplemented this fact when they analyzed panel data representing 11 years of small business financial statements and noted one founder or the founder's family owned or controlled the majority of small businesses. Such concentration of ownership and management in a single person or small group of related individuals serves to reduce the agency conflict between principles and agents. Closely held and family-owned businesses can create a governance issue when the majority shareholders decide to limit the authority and benefits of minority shareholders (Lee, 2012). Such a condition can lead to ownership exploiting its position of authority within the firm to expropriate profits leading to loss of business sustainability (Fama & Jensen, 1938). The majority of stockholder litigation in the U.S. occurs to resolve such issues (Nagar et al., 2011).

Concentration of control manifests itself in those businesses where the owners or owner's families also act as operational management for their firms. Fiegener (2010) studied family involvement in small businesses and found that though sole owner-managers had the authority to involve family members in the operations of the business, the businesses had less family involvement than firms owned entirely by relatives of the CEO. According to Liu et al. (2012), prior research has relied on agency theory and

resource-based theory. The concentration of ownership and management is attracting more scholarly attention, although research on the subject remains sparse (Arosa, Iturralde, & Maseda, 2010; Wellalage & Locke, 2011). The lack of research is primarily due to the difficulty of obtaining systematic and reliable data on small businesses (Arosa et al., 2010). In the absence of available data, researchers have used information from larger businesses and extrapolated the results to address small business issues (Arosa et al., 2010). Results from this type of research are not founded on information obtained directly from small businesses and should not be taken as conclusive. As an example, Wellalage and Locke (2011) conducted a literature review of small business governance research and found most articles focused on activities of boards of directors. Most small firms do not have boards, however.

Measuring governance performance. A limited body of research on small business performance and its relationship to governance exists (Benavides-Velasco, Quintana-Garcia, & Guzman-Parra, 2013), but the research results are inconclusive. A study by Clark and Klettner (2010) of Australian SMEs found that governance enforces discipline on owners, board members, and investors. Yet Debreceny (2013) noted studies showing that 30% of small businesses do not have an IT governance process. Arosa et al. (2010) conducted a mixed methods analysis of 586 private small businesses in Spain and found no association between ownership concentration and firm performance. The authors cautioned the limitations of reviewing only Spanish-based small businesses might factor into the overall results.

The literature review done as part of my research noted other studies of the association between governance and small business performance showed mixed results (Arosa et al., 2010). A quantitative analysis by Chu (2009) of publicly traded family-owned small businesses in Taiwan showed a positive influence by family governance on *Tobin's q* and return on assets. One could interpret the positive influence as a positive correlation between ownership involvement and business performance. However, Chu added the statistical analysis was unable to establish a definite association between ownership concentration and firm performance. A more recent quantitative study by Gordon, Hrazdil, and Shapiro (2012) of publicly traded small firms in Canada found a significant positive association between corporate governance scores and the number of large block stockholders. The authors noted a reduction in the association when board members related to the large block stockholders were present. Gordon et al. interpreted the reduced association as the effects of concentrated ownership and control upon governance quality.

Summary. Small businesses constitute the majority of business enterprises within the United States. Conclusive proof of the effects of ownership involvement on small business performance does not exist, primarily due to the lack of systematic information on small, privately held businesses. Nor has there been conclusive research into the association between owner involvement and governance in small business. The looser organizational structures, general lack of IT awareness, and the added influence of the business owners present challenges to implementing effective IT governance frameworks in small businesses.

Research has shown small businesses with effective governance stand a better probability of obtaining financing. Yet there is little research on the effects of IT governance on small business performance. The results of this study may enable me to provide new information on the relationship between ownership-management structure in small business and the effectiveness of IT governance.

Transition and Summary

Corporate governance has gained in importance as an effective framework for mitigating agency conflicts, ensuring stakeholder rights, reducing business risks, and optimizing the use of corporate resources. Good governance practices improve business performance, even though no conclusive proof of specific correlations between governance and firm performance exists (Chugh et al., 2010; Herath & Freeman, 2012). Interest in good governance has grown to the point where investors now include measuring governance performance in their assessments of a firm's credit worthiness (Daines et al., 2012).

IT governance forms the foundation for effectively planning, operating, and monitoring technology to ensure it aligns with the strategies of a firm's ownership and management (Thomas, 2010). Interest in IT governance has grown due to the ubiquity of technology and the perceived benefits of aligning IT operations with overall business strategy. The body of research, however, cannot demonstrate a positive correlation between IT governance and business performance. The subject remains an area for further scholarly research.

Research literature has tended to overlook IT governance in small business. The unique nature of ownership and management organization in small business presents added complexity in establishing an effective IT governance framework (Nagar et al., 2011; Wellalage & Locke, 2011). Small business executives face unique challenges not found in larger business structures, such as fewer resources, lack of IT expertise, and difficulty in obtaining funding. The advantages of an effective IT governance framework can improve firm performance and enable sustainability in small businesses (Arosa et al., 2010; Gordon et al., 2012).

The review of the literature did not note any extant research on whether an association exists between owner-manager separation and the structure of IT governance in small business. The literature does show owner involvement is more prevalent in small businesses (Nagar et al., 2011; Wellalage & Locke, 2011), yet no evidence was found relating the level of owner involvement to any specific IT governance structure. The results of this study will provide evidence supporting or rejecting the research hypotheses. The information may be of use in future study of small business management and the effectiveness of IT governance in small businesses.

The next sections of this document contain the research process and the analysis of research results. Section 2 provides the survey methodology and results assessment techniques. Section 3 will present (a) the research findings and an analysis of the results; (b) the application of the findings to professional practice; (c) implications of the findings for social change; and (d) recommendations for further research.

Section 2: The Project

The problem, research questions, and hypotheses I developed in Section 1 were the basis for the quantitative correlational methodology. A survey instrument was the tool for obtaining participant data. I used a pilot study to validate the survey methodology and research approach. A quantitative methodology provided the statistical objectivity required to examine the correlation between owner-manager separation and the structure of IT governance in small business.

Purpose Statement

The purpose of this quantitative, correlational study was to examine the extent and type of association that may exist between owner-manager separation in small businesses and the type of IT governance structure in those businesses. The study consisted of two variables. The first variable was the type of owner-manager separation in small businesses: (a) owner-controlled or (b) manager-controlled. The second variable was the structure of IT governance in the businesses: (a) centralized, (b) decentralized, (c) federal, or (d) none. The targeted population consisted of owners and managers in small, privately held businesses in New Jersey. Findings from the research added to the body of knowledge on IT governance in small businesses, an area that has received little scholarly attention. The research results could produce information leading to more efficient and effective structure of IT governance in small businesses, resulting in small businesses better aligning IT with their business strategies. Small business owners and managers could use the research information to help lower operating costs, reduce the opportunity for fraud and waste, and improve competitive advantage. Social benefits

could arise from improved profitability and growth of small businesses. The social benefits include competitive advantage, increased employment opportunities, and improved working conditions for small business employees.

Role of the Researcher

My work experience as a programmer, systems analyst, and IT auditor have exposed me to varied business operations, IT management structures, and governance environments. My role in this research effort consisted of (a) creating the research survey; (b) contacting the potential participants; (c) gathering completed survey results; (d) analyzing the results through statistical tests; (e) identifying themes from the test results; and (f) presenting the research results in Section 3 of this doctoral study. The survey design platform was SurveyMonkey, a commercially available, Internet-based tool for creating data collection surveys (SurveyMonkey, 2012). An unbiased analysis of the survey results was paramount for ensuring the validity of this research study. I had no past or present affiliation with any small business and did not have any financial holdings that could affect research objectivity.

Participants

The research participants were a random sample of owners and senior managers of small, privately held manufacturing businesses in New Jersey. Random sampling mitigated selection bias by ensuring each member in the sample had an equal opportunity for selection to participate (Acharya, Prakash, Saxena, & Nigam, 2013; Hohwu et al., 2013). Information obtained from a commercial business listing service identified

participants. Detailed information on participant identification and sample size determination is included in the Population and Sampling section of this paper.

Access to participants was through e-mail correspondence sent from my Walden University e-mail account. The e-mail request contained information in accordance with the recommendations of previous authors (Fan & Yan, 2010; Kaplowitz, Lupi, Couper, & Thorp, 2012) who have identified methods to maximize survey responses. Within the e-mail request, I asked the participants to participate voluntarily in an Internet-based survey that will provide the data needed to test the research hypothesis.

The participation request included a description of the research project and the project's potential benefits to small businesses. The request stated participation in the survey was voluntary with no compensation offered for completing the research survey. The request also stated that the survey did not request participant names, company names, and company financial information. An estimate of the time required to complete the survey was included. The request advised participants that after starting the survey they could withdraw at any time, without penalty, from participation by not completing all survey questions. The final part of the participation request contained my Walden e-mail address where individuals could contact me if they had any questions regarding the survey. Correspondence between participants and me was stored in a separate electronic folder within my Walden University e-mail account.

The consent form for survey participants, in Appendix E, was part of the online survey. The consent form included the information contained in the initial participation

request. To gain access to the survey, participants positively confirmed their agreement with the consent form parameters through electronic affirmation within the survey.

Research Method and Design

The design of this quantitative, correlational study facilitated the generation of information to investigate the extent and nature of the association between owner-manager separation in small New Jersey businesses and the structure of IT governance in those businesses. One variable in the relationship was the nature of owner-manager separation in small businesses (owner-controlled or manager-controlled). A second variable was the type of IT governance structure in the businesses (centralized, decentralized, federal, or none). The section presented here includes a detailed explanation of (a) the research methodology; (b) research design; (c) other research methods considered; and (d) justification for the chosen methodology and design.

Method

The positivist philosophy drove the research method used in this study. Positivists put forth elements often associated with the natural sciences and which complement the quantitative research approach. The elements include independent and dependent variables, quantitative data, and inferential statistics (Plonsky & Gass, 2011; St. Pierre, 2012).

Quantitative methodology was best for the deductive research approach used in this study (Borrego et al., 2009). Quantitative methodology adheres to the positivist philosophy of the variables being objective entities and relationships between entities can be measured (Myers & Klien, 2011; Persson, 2010). The quantitative method allows

assignment of numeric values to variables and then uses statistical tests to infer characteristics of the variables to the entire population (Plonsky & Gass, 2011).

I rejected the qualitative research approach because qualitative researchers emphasize subjective analysis of the meaning of words and experiences rather than on the objective measurement of phenomena required to address the research hypotheses presented in this study (Onwuegbuzie, Johnson, & Collins, 2009). Qualitative methodology also incorporates the belief that knowledge can result from subjective observations of reality (Dumay & Rooney, 2011) rather than objective measurements of phenomena. The purpose of this study was not to present a holistic exploration of the reasons behind a particular correlation between owner-manager separation and IT governance structure in small business, but only to ascertain whether such correlations exist. Qualitative methodology requires observation, interviews, document reviews, and emphasizes the context in which the research occurs (Borrego et al., 2009; McGregor & Murnane, 2010). Therefore, qualitative methodology was not suitable for the deductive research needed in this study.

Mixed methods research methodology includes the strengths of both qualitative and quantitative research methodologies while minimizing the weaknesses inherent in the two (Alise & Teddlie, 2010). A mixed methods research approach, which would combine the objectivity of quantitative research with the rich subjectivity of qualitative analysis (Leech et al., 2010; Onwuegbuzie, Frels, Leech, & Collins, 2011), would not address the primary and secondary research questions. The extent of the resource

requirements needed for completion of a mixed methods research effort also contributed to the decision to forego a mixed methods approach in favor of quantitative methodology.

Research Design

I chose a correlational research methodology for this study. Researchers use correlational designs to examine and test associations between and among variables (Castro, Kellison, Boyd, & Kopak, 2010), making correlation analysis the best suited research design for assessing support for the research hypotheses in this research. Because the purpose of the study was to examine the association between owner-manager separation and the structure of IT governance in small businesses, a correlational design was the appropriate quantitative method for answering the research question.

The correlational design also aligns with the explanation of descriptive correlation research (DCR) outlined by Radhakrishna et al. (2009). DCR explains or predicts the relationships between variables through various forms of statistical analysis. The goal of this research design was to examine the existence and nature of associations that may exist between the variables. The statistical methods to test for associations among variables can result in inferring a correlation in the total population of small businesses.

An experimental design was unsuitable for answering the research questions in this study. Researchers use experimental studies to test theories by controlling one or more variables and examining the effect of changing the variables against the remaining (uncontrolled) variables (Campbell & Stanley, 1966). I did not manipulate the value of any variables in this study.

Quasi-experimental designs are appropriate for examining cause-effect relationships among variables using a control group and a separate experimental group (Campbell & Stanley, 1966). There was no attempt to determine cause-effect relationships between owner-manager separation and IT governance structure in small business in this study. Further, quasi-experimental designs are not appropriate for random allocation of participants to study groups. Therefore, the quasi-experimental method was not suitable for the research in this study.

A descriptive research design was also inappropriate for describing the state of the phenomenon under study. The descriptive research approach does not require a hypothesis until after collection of the research data (Campbell & Stanley, 1966). Descriptive research was not suitable for this study because the research goal was to support or reject hypotheses created a priori.

The correlational design was suitable for the collection of data in determining whether correlations exist between owner and manager separation and the structure of IT governance in small business. Participants' responses to an Internet-based survey provided the data for the research. Survey respondents provided objective answers to research questions regarding which groups render decisions on IT governance issues within their respective businesses. Survey answers provided values of the variables in this study.

The Data Collection section includes an explanation of how the specific data values stemmed from specific responses to survey questions. Survey participants selected responses from a list of objective answers for each question, thereby eliminating

the need for recoding the responses or subjective interpretation of responses. Correlation analysis cannot identify the causality of any associations found between the predictor and response variables; therefore, causality determination was not an objective of this research.

Population and Sampling

The survey participants comprised a sample of owners and senior managers from small, privately held manufacturing firms located in New Jersey. The sample came from information provided by Hoover's™, a subsidiary of Dun and Bradstreet (Hoovers, 2012). Hoover's offers commercially available listings of business information for use in marketing and research. Hoover's updates its information annually to provide current data on both public and private firms in the United States. Hoover's also classifies its data by type of business, location, number of employees, and financial information. The Hoover's *OnDemand* function enabled obtaining of customized business listings over the Internet. The *OnDemand* function generated a population of small business owners and managers who met the criteria for inclusion in this research. The selection steps and criteria used for obtaining the population of businesses from Hoover's were

1. Identify small, privately held manufacturing businesses.
    (a) Location of business = New Jersey.
    (b) Number of employees = between 10 and 500.
    (c) Annual sales = $5,000,000 or less.
    (d) NAIC codes starting with 31, 32, or 33 (manufacturing companies).
    (e) Non-public businesses.

(f) Not a subsidiary or franchise.

2. Identify business owners and managers in the selected small businesses.

(a) Key personnel were those shown in the Hoover's listing with titles of owner, co-owner, proprietor, partner, chief executive officer, chairman, vice chairman, president, chief operating officer, chief financial officer, general manager, senior vice president and vice president.

This population of small business executives formed the body of business owners and managers required for the study's survey. Contact with the business owners and managers occurred through a participation request sent to their e-mail addresses shown in the Hoover's listing. Prior research indicated university sponsorship has a positive influence on survey responses (Anseel, Lievens, Schollaert, & Choragwicka, 2010). Therefore, the e-mail contact with participants originated from my Walden University e-mail account to help establish credibility as an academic researcher. The sampling process was intended to be random, assuring each member in the sample has an equal opportunity for selection to participate (Fowler, 2009; Hohwu et al., 2013).

Sample Size

Hoover's offers data on both public and private firms. The data classifications are (a) type of business; (b) location; (c) number of employees; and (d) financial information (Hoovers, 2012). For this study, I developed selection criteria as described in the *Population and Sampling* section. The sample size from the target population must be sufficiently large to ensure adequate representation of each variable of owner and manager in the survey responses (Lan & Lian, 2010) and to mitigate the effect of

potential nonresponse bias. Using the selection criteria, a search of all New Jersey businesses in the Hoover's database returned the population size of 2,065 owners and senior business executives.

A priori power analysis provided an estimate of the number of cases required to test the null hypothesis that there is no statistically significant association between owner-manager separation and the structure of IT governance within small businesses in New Jersey. The power analysis relied on assumptions about: (a) the strength of the association between the variables; (b) the alpha level for rejecting the null hypothesis; (c) the desired likelihood of rejecting a false null hypothesis; and (d) the proportion of cases in each of the two groups in the study (Lan & Lian, 2010; Prajapati, Dunne, & Armstrong, 2010). I used the G*Power 3.1 software program to estimate the sample size for the target population of 2,065. G*Power is a power analysis program for many commonly used statistical tests (Faul, Erdfelder, Buchner, & Lang, 2009). The G*Power program's "Goodness of Fit Test: Contingency Tables" option generated the sample size results.

As explained in the *Data Organization Techniques* section and depicted in a generic layout in Table 2, a summary of the response data took the form of a contingency table consisting of two rows and four columns. There were 3 degrees of freedom (*df*) for the analysis, which reflects the two rows of data and four columns of responses as determined by the equation $df = (\text{Rows} - 1)*(\text{Columns} - 1) = 1*3 = 3$ (Fisher et al., 2011). The two rows of data represent the variable values of owner or manager. The four columns represent the values for the types of IT Decision Domains.

Table 2

Generic Contingency Table Layout for Summarized Survey Response Data

Variable	IT Governance Archetypes			
	Centralized	Decentralized	Federal	None or don't know
Owner				
Manager				

I set the alpha level for rejection of the null hypothesis at the conventional level of $\alpha = .05$. Fay and Proschan (2010) wrote that a power level of .95 is desirable for a definitive test of the null hypothesis (where the probability of rejecting a false null hypothesis is 95%), so the power level was set at .95. I computed separate sample sizes for effect sizes of *low* ($\omega = .10$), *medium* ($\omega = .30$), and *high* ($\omega = .50$). Although I anticipated a medium effect size for survey responses, the effect size for this study could not be determined a priori. Table 3 contains the data values used in the power analyses and the G*Power results showing the required sample sizes for a range of effect sizes. G*Power results indicated the need for 191 completed surveys for a medium effect size ($\omega = 0.3$) and a power level of .95.

Table 3

*Sample Size Calculation Using G*Power 3.1 Software*

	χ^2 tests - Goodness-of-fit tests: Contingency tables			
Input	Effect size (ω)	.10	.30	.50
	α err prob	.05	.05	.05
	Power (1-β err prob)	.95	.95	.95
	df	3	3	3
Output	Noncentrality parameter λ	17.17	17.19	17.25
	Critical χ^2	7.81473	7.81473	7.81473
	Total sample size	1717	191	69
	Actual power	.95000	.95024	.95095

Note. Analysis: A priori: Compute required sample size

The completed research surveys provided data used to test the hypotheses presented in Section 1. I used chi-square analysis on the collected survey data to test the null hypotheses. I expected test results to be one of four possible outcomes:

1. The null hypothesis is rejected.

2. The null hypothesis is rejected incorrectly (Type I error).

3. The null hypothesis is not rejected.

4. The null hypothesis is not rejected although it should be (Type II error).

Anseel et al. (2010) noted a mean response rate of 34% for surveys sent to senior business executives. Using the 34% response rate as a guide, I determined that a minimum of 562 of the 2,065 small business owners and managers must receive invitations to participate in the research survey (562 x .34 = 191). To enable random selection of 562 owners and managers from the population of 2,065, the participant names and e-mail addresses were loaded into an Excel spreadsheet. I used the Excel RANDBETWEEN formula to generate a unique, random sequence number for each of the participants. Sorting the spreadsheet by the lowest to highest random numbers generated a random listing of owners and managers. I sent invitations to complete the survey to the first 562 names in the sorted spreadsheet.

Common research practice is to maintain the probability of a Type I error at no more than .05 and maintain statistical power of at least .80 to mitigate the probability of Type II errors (Brown, 2011). Quantitative results lack reliability if they fail to meet the generally accepted minimum criteria. Post hoc testing of the survey data (using SPSS) verified attainment of a statistical power greater than .85.

Ethical Research

Scholarly researchers adhere to a process designed to ensure the accurate, unbiased discovery and disclosure of knowledge while protecting the rights and safety of research participants (see Lim, 2012). As discussed by Resnik and Shamoo (2011), ethical conduct in research encompasses honesty in research design, data analysis, and presentation of results. Adherence to the Walden University research protocols achieved the research goals of honesty, accountability, respect and courtesy for participants, and stewardship of results. The doctoral study committee and university IRB were instrumental in verifying adherence to the research protocol.

Respondents could not provide written consent to participate because the research survey was Internet-based. The beginning of the survey included a statement of voluntary consent to participate (see Appendix E). The statement outlined the purpose of the research. It advised that no psychological or physical risks were associated with survey participation. The statement also explicitly stated participants would not receive compensation or other inducements if they chose to engage in completing the survey.

Positive confirmation of each participant's informed consent came from agreeing with survey parameters presented on the first online page in the survey. The consent information also included instructions on how the participants could contact me if they had questions or concerns about the survey. My Walden University e-mail address was the means of contact. The survey model was a sequential process enabling participants to view and respond to survey questions only after responding positively to the informed consent agreement (Albaum, Roster, & Smith, 2014). Participants could elect to

terminate their involvement with the survey (survey breakoff) by either not completing all survey questions or indicating through the final question that they did not wish to have their survey responses included in the research. Participants can request a summary of survey results and analysis by contacting me at my Walden University e-mail address.

Data Privacy

I invited owners and senior managers of the selected small businesses to participate in the survey via e-mail communication. It could not be determined whether any of the participants belonged to a vulnerable population, but this was not relevant to their ability to complete the survey. The survey responses did not require any identifying information about the participants. The survey questions did not ask for business names, participant names, and company financial information.

Survey data downloaded for analysis are available only to me. When the survey analysis was completed, I copied the data to a write-once, read many (WORM) disk to prevent alteration of the contents. The disk will be stored in a safe deposit box for a period of 5 years after the end of the survey period. I will destroy the disk after the 5-year retention period. During the 5-year retention period, a summary of the research data and analysis will be available to participants and other researchers upon request.

Data Collection

Figure 2 provides a high-level illustration of the data collection and subsequent analysis process. An Internet-hosted survey instrument provided the response data for this survey. A random sample of 562 of the 2,065 small business owners and senior managers each received an invitation to participate in the study via e-mail notices

(Appendix G). The announcement contained an explanation of the research effort, a brief explanation of the survey questionnaire, a request for the recipient's voluntary participation in the research survey, and a link to the SurveyMonkey site hosting the survey. Appendix D shows the complete survey. Participants acknowledged their informed consent through positive affirmation within the survey.

A second announcement followed 2 weeks after the initial announcement, thanking the participants for their support and reminding them to participate if they had not already done so (see Appendix H). SurveyMonkey recorded and stored the survey responses for later retrieval. As discussed in the *Population and Sampling* heading, the research required 191 completed surveys to generate the targeted levels for statistically valid results.

After the survey response period concluded, I transferred survey results data in SurveyMonkey to my personal computer using a download process available on the hosting site and tested the null hypothesis via the SPSS chi-square program. My personal computer contains an encrypted disk that can only be unlocked with a password. After the survey has concluded, I copied survey information onto an external disk and stored the disk in a safe deposit box, where it will remain for a period of 5 years. The survey information will be available to other researchers upon written request within the 5-year retention period. I will not release participant identifying information (names, e-mail addresses, businesses) to others. When the 5-year retention period ends, I will destroy the external disk and shred any remaining paper data.

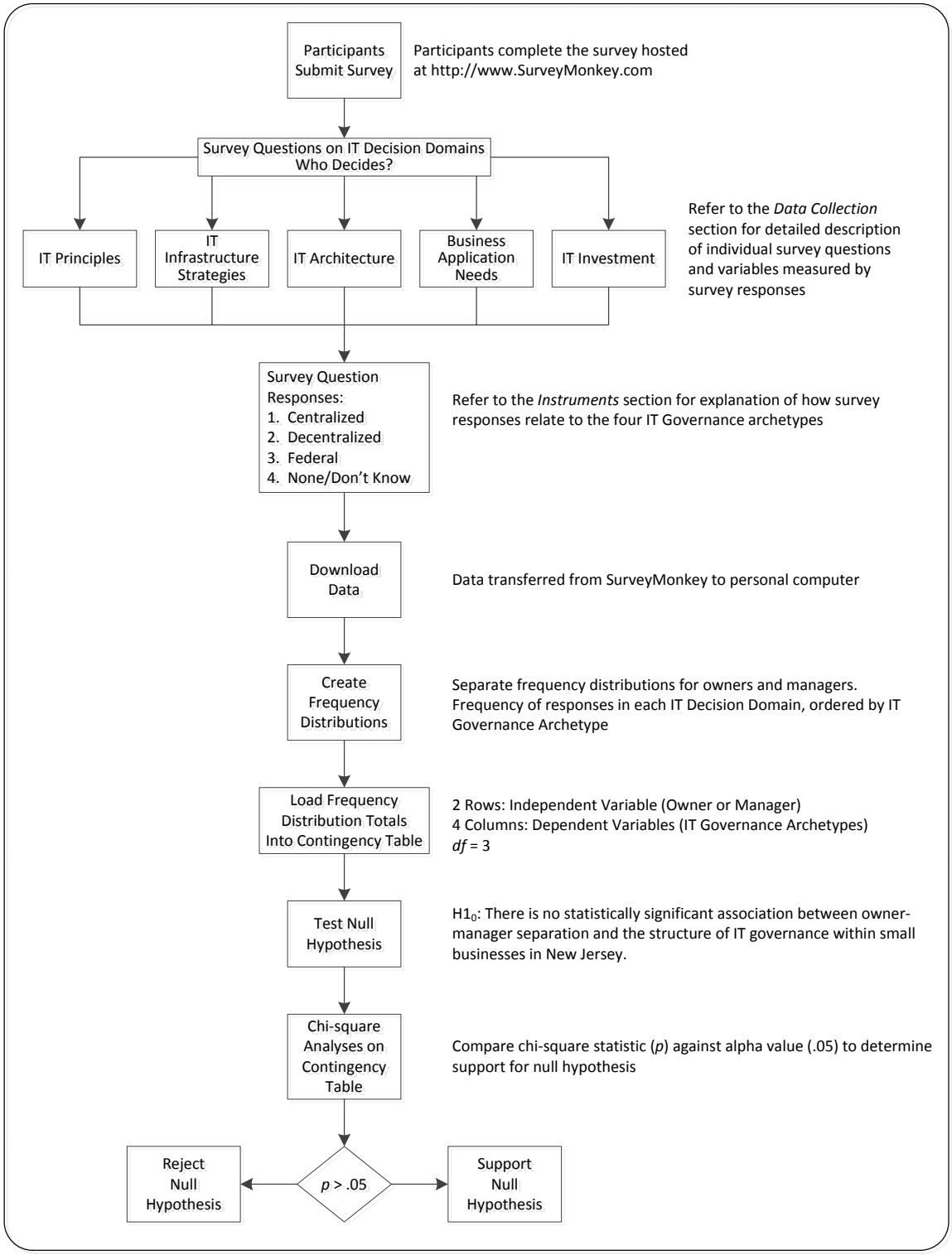

Figure 2. Process flow for data collection and analysis.

A major reason for choosing SurveyMonkey to host the participant survey was the suite of security features SurveyMonkey employs to protect the respondents' survey data against unauthorized access and modification (SurveyMonkey, 2012). Physical access restrictions protect the SurveyMonkey data center and its servers. A firewall restricts outside access to data. Network intrusion detection operates at all times. Data encryption protects backup storage files. Secure Socket Layer (SSL) protocol provides an encrypted connection between the participant and SurveyMonkey.com. Processing parameters set during survey creation are standard features for preventing the saving of e-mail addresses and IP addresses. Viewing and downloading survey data required a user identifier and password supplied by SurveyMonkey (at the time of survey creation). I did not share my user identifier and password with others.

A disadvantage of using surveys to collect research data is the potential compromise of participant confidentiality. As discussed in the *Data Privacy* and *Data Collection* sections, the survey did not include information on participant names, e-mail addresses, business names, and business financial data. Survey responses were completely anonymous, and reviewing the survey data will not disclose the identities and locations of participants.

Instruments

The raw data for this research came from the participants' responses on a multiple-choice survey created using SurveyMonkey. Survey participants completed and submitted the survey over the Internet using a link supplied in the introductory e-mail. One survey question asked the participants to identify themselves as either a business

owner or a member of business management (the variable of business ownership or business management). Other questions asked the respondents to indicate which organizational structure (IT governance archetype) is used within their business for making decisions in five specific IT governance areas, referred to as *decision domains* (the response variable's values for identifying the type of IT governance structure). As depicted in Table 4, the decision domains are *IT principals*, *IT infrastructure strategies, IT architecture*, *business application needs*, and *IT investment*.

Table 4

Hypothetical Frequency Distribution of Managers' Responses (Fictitious Data)

IT governance archetype	Decision domains					
	IT principles	IT infrastructure strategies	IT architecture	Business application needs	IT investment	Total
Centralized	103	95	105	57	99	459
Decentralized	44	68	17	68	57	254
Federal	40	24	65	62	31	222
None or Don't know	6	6	6	6	6	30
Total	193	193	193	193	193	965

Note. Two separate frequency distributions were required - one for owners and one for managers.

The basis for the survey questions is a modified version of Weill and Ross' (2004) IT Governance Arrangements Matrix (see Appendix B). The IT Governance Arrangements Matrix is a table used for classifying IT governance decisions into several different organizational structures. Each organizational structure shown in the matrix relates to a specific value of a survey response by the participants (see "Concepts measured and score calculation*"* below). Survey questions asked the participants to designate who is responsible for making decisions regarding five specific aspects of IT governance (the decision domains) in their businesses. The completed tables (one for

owners, one for managers) represent tallies of responses by IT governance archetype for each IT decision domain. The separate tables for owners and managers provided the data for addressing the basic research question of this study: To what extent is there a statistically significant association between the type of owner-manager separation and the structure of IT governance within small businesses operating in New Jersey?

I combined several of the governance archetypes shown in the original table (see Appendix B) to simplify the survey questionnaire and to simplify the analysis and reporting of survey results, resulting is a smaller and easier to analyze modified table (see Appendix C). The *Centralized* archetype combined the original *Business Monarchy* and *IT Monarchy* archetypes. The *Decentralized* archetype combined the original *Feudal* and *Duopoly* archetypes. The *None or Don't Know* archetype is a catchall category for the original *Anarchy* archetype and cases where respondents indicated they did not know the answer to the survey question. The archetype values of *None* and *Don't Know* were combined because few responses were anticipated in these archetypes. Appendix C contains the modified version of the IT Governance Arrangements Matrix (the matrix). Permission to use the original matrix and permission to modify the matrix into the table for this study appear in Appendix D. The table, when populated with survey response totals, represents a frequency distribution used in hypothesis testing and analysis. The frequency distribution contains a summary of responses to individual survey questions on IT governance. The response variables of the IT Governance Archetypes comprise the rows of the table. The IT Decision Domains, representing responses to five of the survey questions, comprise the table columns. Table 4 provides an example of a *hypothetical*

frequency distribution of the potential response summaries for the research variables. The *Pilot Study* section of this document discusses both the history and processes for measuring and assuring the reliability and validity of the survey instrument.

Concepts measured and score calculation. There were eight questions in the survey. The small number of questions followed a recommended practice of keeping survey length short to reduce the risk of method bias and increase the probability of completed surveys (Kaplowitz et al., 2012; Podsakoff et al., 2012). Appendix E contains the survey questions, each with its allowable set of responses. The first survey question (Question A) required the participants to affirm their voluntary, non-compensated participation in the survey. Only a *yes* or *no* response will be available, with a *no* response resulting in the survey ending at that point. The second survey question (Question B) asked the participants to identify themselves as either a business owner or a member of business management (the variable values of business ownership or business management). The responses to the second question indicated whether ownership is involved in operational management of the participating firm. Responses to this question were internally coded to represent business ownership as a value of *1* and business management as a value of *0*. The coding enabled segregation of survey responses by response variable value for creating the separate data tables for owners and managers.

The next five questions (Questions C through G) in the survey provided for one of 5 multiple choice responses designed to indicate which organizational structure (IT governance archetype) within the business has decision making authority over each of the five IT governance domains shown in the matrix.

1. Question C asked which organizational structure is responsible for creating and implementing policies and standards for clarifying the role of IT in the business.
2. Question D asked which organizational structure is responsible for identifying the need for sharing or enabling IT services within the business.
3. Question E asked which organizational structure is responsible for identifying and implementing IT integration and standardization within the business.
4. Question F asked which organizational structure is responsible for identifying and specifying the business needs addressed by IT applications within the business.
5. Question G asked which organizational structure is responsible for selecting which IT initiatives to fund in the business and how much to spend on the initiatives.

Responses to questions C through G corresponded to the IT governance archetype used to make decisions for the specified decision domain.

1. Each response #1 related to the centralized IT governance archetype
2. Each response #2 related to the decentralized IT governance archetype
3. Each response #3 related to the federal IT governance archetype
4. Each response #4 related to no IT governance archetype
5. Each response #5 is for use when the respondent did not know how decisions occur in the particular decision domain.

Internal coding represented the selection of a specific response (IT governance archetype) with a value of *1* while a value of *0* represented a non-selected response. The method allowed for summarizing responses by variables and by question. Chi-square tests require a frequency distribution for calculating the value of chi-square statistic (Fisher et al., 2011). As shown in Table 4, each cell entry in the table contained a frequency count of survey responses for each variable. Table 5 contains a summary of how the variables developed frequency counts for entry into the contingency table to test for associations supporting or refuting the research hypotheses in this study.

Table 5

Variables Measured in Survey Questions

Variable description	Question number
Designation as Owner or Manager	2
Decision Domain: IT Policies and Standards*	3
Decision Domain: IT Services*	4
Decision Domain: IT Integration*	5
Decision Domain: IT Business Needs*	6
Decision Domain: IT Funding*	7

*Responses to these questions identify the IT Governance Archetype for the Decision Domain.

Data Collection Technique

Appendix F contains the survey questions and possible responses. I loaded the survey response data from SurveyMonkey into two separate frequency distributions representing summaries of the responses from owners and managers (see Table 4). The hypothetical frequency distributions show summaries of responses to each survey question on IT governance. It is common to present frequency distributions in a contingency table for further analysis (Fisher et al., 2011). I created a master

contingency table from combining data in the two frequency distributions (owners and managers).

Table 6 illustrates a contingency table using *combined* (owner and manager) *hypothetical* response data. Values of the variable, Owner and Manager, form the two rows of data in the table, while the values for the variable, IT Governance Archetypes, form the columns. The individual data cells in Table 6 represent examples of total survey responses for each combination of variables. I populated the contingency table from the survey response totals using Excel. Figure 3 illustrates the transfer of the frequency distribution totals (shown in Table 4) into the contingency table (shown in Table 6). I then input the IT Governance Archetype totals from each (owner or manager) frequency distribution (see Table 4) into the corresponding cells in the contingency table.

Table 6

Contingency Table Using Hypothetical Data

Variable	IT governance archetypes			
	Centralized	Decentralized	Federal	None or Don't know
Owner	459	254	222	30
Manager	279	127	111	15

Pilot study. The lack of a prior, research-proven survey required a pilot study of the survey instrument after receiving IRB approval for this proposal. The purpose of the pilot study was to validate the research approach intended for use in the larger study (Arain, Campbell, Cooper, & Lancaster, 2010; Brown, 2011; Leon, Davis, & Kraemer, 2011, Thabane et al., 2010). The study centered on a self-completed survey. Therefore,

survey reliability and validity were critical. The pilot study would explore the survey instrument's design, ease of use, consistency, and participant's level of understanding.

Frequency Distribution

IT Governance Archetype	Decision Domains					
	IT Principles	IT Infrastructure Strategies	IT Architecture	Business Application Needs	IT Investment	Total
Centralized	103	95	105	57	99	459
Decentralized	44	68	17	68	57	254
Federal	40	24	65	62	31	222
None or Don't Know	6	6	6	6	6	30
Total	193	193	193	193	193	965

Contingency Table

	IT Governance Archetypes			
Variable	Centralized	Decentralized	Federal	None or Don't Know
Owner	459	254	222	30
Manager	279	127	111	15
Total	738	381	333	45

Figure 3. Transfer of (hypothetical) frequency distribution totals into a contingency table.

There is a lack of prior quantitative survey research using the IT Governance Arrangements Matrix. All prior research using the matrix has been qualitative in nature, using subjective criteria that cannot accurately translate into the objective data required for the quantitative analysis. Dolnicar and Grun (2012) determined it is difficult and imprecise to compare survey results derived from different answer formats. Thus, a pilot study using questions derived from the modified IT Governance Arrangements Matrix was required to establish the statistical reliability and validity of the survey instrument and the survey responses.

The analysis of pilot survey results, and any questions and comments from the survey respondents is of use to establish survey integrity or indicate a need to revise the survey. Hertzog (2008) posited that because the purpose of a pilot study is to assess the feasibility and adequacy of the research methodology, the stringency of statistical results is of secondary importance. Hertzog suggested the normal 95% confidence interval may be too high for pilot testing, and a 90% measurement is better for measurements in pilot studies. Therefore, the pilot test for this study used a power of 90%. The effect size is medium ($\omega = 0.3$). I planned to assess any questions and comments received from survey participants to determine whether they indicated a need to revise the survey questions.

There is little published research on the correct sample size for a pilot study (Arain et al. 2010; Hertzog, 2008, Johanson & Brooks, 2010). In their research, Thabane et al. (2010) found no established formula exists for determining the correct sample size for a pilot study. Pilot study sample sizes in quantitative research should be sufficient to assess the statistical reliability of measurement tests. Using the G*Power Chi-square Goodness of Fit test with a power of .90 and an effect size of 0.3, a minimum sample of 158 completed surveys was required (see Table 7). Research by Anseel et al. (2010) documented mean response rates of 34 percent for surveys sent to top executives. Therefore, the size of the pilot study sample was a minimum of 466 participants to assure a large enough pool of results to measure the feasibility of the research approach. I expected the 466 requested participants to generate at least 158 completed surveys for analysis of the pilot test (466 x .34 = 158).

Table 7

*Sample size calculation for pilot study using G*Power 3.1 software*

χ^2 tests - Goodness-of-fit tests: Contingency tables	
Effect size (*w*)	.30
α err prob	.05
Power (1-β err prob)	.90
df	3
Noncentrality parameter λ	14.220
Critical χ^2	7.81473
Total sample size	158
Actual power	.90108

Note. Analysis: A priori: Compute required sample size

After receiving IRB approval, I determined the reliability and validity of the research survey through analysis of pilot study survey responses plus questions and comments received from participants. The participants for the pilot study met the same selection criteria as those in the larger scale research. I selected pilot study participants from a population of owners and managers of small, privately held manufacturing businesses in New Jersey. I used the Hoover's database to segregate the target population by county so filtering of the participant identifying data would create a small pool of potential participants from two specific counties in New Jersey. I randomly selected participants using the same technique described in the sample size section, with a resulting 466 randomly chosen participants to engage in the pilot study. I planned to select an additional 50 participants from the randomized pilot study participant list should the initial 466 pilot study participants fail to generate the minimum number of completed surveys. I did not plan to combine the pilot test results with results from the larger scale

study. I will retain pilot study raw data on disk, in a secured location, for a period of 5 years.

If the pilot study results indicated a need for refinement, the Walden University IRB must review and approve any changes prior to their implementation. The pilot study did not return an adequate number of completed surveys, requiring me to request IRB approval for combining the pilot test surveys with the main test surveys (see Presentation of Findings in Section 3). The IRB approved the request.

Data Organization Techniques

The first survey question (Question A) required the participants to certify they have read and understood the survey consent agreement. A *yes* response was internally coded as *1* while a *no* response was coded as *0*. The second survey question (Question B) required respondents to designate themselves as either a business owner (internally coded as *1*) or a member of business management (internally coded as *0*). Survey questions C through G asked respondents to designate which persons or groups make decisions in each of five IT decision domains. Responses corresponded to decisions made in a specific IT governance archetype as shown and in Table 8:

1. Each response #1 related to the centralized IT governance archetype
2. Each response #2 related to the decentralized IT governance archetype
3. Each response #3 related to the federal IT governance archetype
4. Each response #4 related to no IT governance archetype
5. Each response #5 was for use when the respondent did not know how decisions occur in the particular decision domain.

Table 8

Relationship of Survey Questions to Research Variables

Variable number	Variable description	Question number
1	Designation as Owner or Manager	2
2	Decision Domain: IT Policies and Standards*	3
2	Decision Domain: IT Services*	4
2	Decision Domain: IT Integration*	5
2	Decision Domain: IT Business Needs*	6
2	Decision Domain: IT Funding*	7

*Responses to these questions identify the IT Governance Archetype for the Decision Domain.

Each survey question C through G had five possible responses. The number *1* in the chosen answer internally represented a positive response in each question while the number 0 represented the unselected responses in each question. The final survey question was the participant's affirmation that all survey questions were completed and the participant agrees to have the responses used in the calculation of survey results. A *yes* response was indicated by a *1*, while a *no* response was indicated by *0.* A frequency distribution of survey responses was then constructed which showed the total responses by answer number for each decision domain (Liu, Lin, Wang, & Wu, 2012). The method resulted in frequency data within a spreadsheet format of rows and columns for easy downloading into SPSS for analysis. Appendix I illustrates the layout of survey response data in a spreadsheet-like format. In the illustration, variables appear as columns while the values of each variable (corresponding to individual survey responses) appear in individual rows.

Data Analysis Technique

The data analysis plan of this study stems directly from the problem statement, research purpose, and research questions through examining the degree and nature of the association between owner-manager separation in small businesses and the structure of IT governance in those businesses. I designed the analysis to either support or reject the null hypothesis, which states there is no statistically significant association between owner-manager separation and the structure of IT governance within small businesses in New Jersey. SurveyMonkey summarized the frequency counts of answers for each survey question by the number of responses for each IT governance archetype. I used the survey data downloaded from SurveyMonkey to test the research hypotheses using SPSS software. SPSS is a widely accepted software package for calculating quantitative statistics from raw data.

Research Instrument Testing

Survey instrument reliability already existed because the survey classified responses into categories based on respondent status (owner or manager) and type of IT governance structure (archetype). Respondents belonged to either one category or the other, a state that did not warrant further testing for reliability.

Research Hypothesis Testing

I used the data in the contingency table to test the null hypotheses. A chi-square test of independence on the contingency table data generated results to assess the degree of association between owner-manager separation and the structure of IT governance in small businesses. A chi-square test of independence is a common statistical tool used to

determine whether variables in a categorical sample are associated with each other (Franke et al., 2012). In such a test, the null hypothesis states there is no association between the variables. The chi-square statistic (denoted as χ^2) is a non-parametric test of a statistical hypothesis where the sampling distribution of the test statistic is a chi-squared distribution in cases when the null hypothesis is true (Prematunga, 2012). Both variables in the research survey (owner-manager designation and IT governance structures) were categorical variables, for which both Carroll (2012) and Prematunga (2012) stated that chi-square analysis is appropriate.

A chi-square ($_{\chi}^2$) test for independence examined the cross-tabulated frequency data in the contingency table to test for correlations between the two nominal values of the first variable (owner or manager) and the nominal variables representing IT governance structures of (a) centralized; (b) decentralized; (c) federal; and (e) none/don't know (Carroll, 2012; Fisher et al., 2011). Results from the chi-square test determine whether two or more categorical values are independent or significantly correlated. Results will not determine whether one variable can predict the value of another variable. As described in the section on sample size, the calculation of the power of the chi-square test included an alpha value of .05 and 3 degrees of freedom. Pereira and Leslie (2009) noted the 2-tailed chi-square test is more rigorous than a simple 1-tail test; thus, the chi-square analysis I employed in SPSS used the 2-tailed option. If the computed significance level of chi-square value from the contingency table data (denoted by *p*) was greater than the .05 alpha value, the result supported the null hypothesis (of no association between owner-manager separation and the structure of IT governance).

Table 9 summarizes the theoretical framework related to the research questions. The underlying tenets of agency theory and stakeholder theory formed the basis for the research questions, which asked whether business ownership or management had the authority to render decisions in each of five IT decision domains. Associations between decision-making authority and the structure of IT governance (the IT governance archetype) noted through results analysis served to either support or reject the null hypothesis of no correlations between owner and manager responses.

Table 9

Relationship of Theoretical Framework to Research Questions

Survey question	Theoretical framework	Data elements
1. My position in the business is:	Agency Theory, Stakeholder Theory	Owner or Manager designation
2. Who is responsible for creating and implementing policies and standards used to clarify the role of IT in your business?	Agency Theory, Stakeholder Theory	Decision domain, IT Governance Archetype
3. Who is responsible for determining the need for sharing or enabling IT services within the business?	Agency Theory, Stakeholder Theory	Decision domain, IT Governance Archetype
4. Who is responsible for identifying and implementing IT integration and standardization within the business?	Agency Theory, Stakeholder Theory	Decision domain, IT Governance Archetype
5. Who is responsible for identifying and specifying the business needs to be addressed by IT applications in your business?	Agency Theory, Stakeholder Theory	Decision domain, IT Governance Archetype
6. Who is responsible for selecting which IT initiatives to fund in the business and how much to spend on the initiatives?	Agency Theory, Stakeholder Theory, Resource-Based Theory	Decision domain, IT Governance Archetype

Reliability and Validity

The study required careful considerations of reliability and validity. Reliability is the extent to which the research design, if replicated, will yield consistent results, while validity is the extent to which the research results truly represent the phenomenon of interest. A pilot study of 158 owners and managers from a small subsection of small businesses in New Jersey generated data used to assess the reliability and validity of the research design.

The basis of the survey instrument in this study was a modified version of the IT Governance Arrangements Matrix (see Appendices B and C). No quantitative research exists based on the original or modified matrices. Surveys designed to provide data for the original matrix did not undergo quantitative analysis. Prior uses of the original matrix, and surveys to complete it, have been non-scholarly, qualitative survey exercises. Without prior evidence, the need to establish the reliability and validity of the survey instrument was critical to the success of this research effort.

Reliability

Reliability represents the degree of confidence that the research technique will provide consistent results when used repeatedly (Babbie, 2012). Internal consistency reliability demonstrates reliable results across all measures of the survey when using an established instrument to measure relational outcomes. The construction of the research survey used in this study provided for consistency by grouping responses into clearly defined categories that do not vary.

Validity

Scholarly research must address two generic types of validity. *Internal validity* ensures the research process can draw conclusions about relationships from the data. *External validity* is the ability to generalize research results to the general population (Campbell & Stanley, 1966).

A major concern in using a previously unproven survey is *construct validity*, which denotes whether the survey's operational values adequately represent the theoretical constructs of the research. The construct validity of this research exists by the use of the actual constructs of owner-manager separation and the actual IT governance archetypes (Weill & Ross, 2004). Mitigation of threats to construct validity occurred through detailed definition of all survey constructs, coupled with the rigor of the Walden University academic review process.

Internal validity. By creating survey questions strictly based on the survey variables, the research mitigated instrumentation bias. The survey questions also eliminated any preference bias by providing the survey respondents with an objective list of possible answers free of any researcher influence (Wilholt, 2013). As recommended by Walliman (2011), the survey used closed format questions. The survey questions required responses from a list of objective choices, which provided clarity and did not bias participant responses. Closed format questions reduced the risk of participants misinterpreting the queries and answers, which could have led to incorrect responses. I conducted the survey only once without any pretests. By conducting the survey only once, I eliminated other threats to internal validity noted by Campbell and Stanley (1966)

such as maturation (effects of time passage on respondents), mortality (loss of respondents in subsequent testing), and history (events occurring between tests).

External validity. The ability to generalize survey results from a sample of small manufacturing businesses in New Jersey to the entire population of small manufacturing businesses in New Jersey depends upon the study's external validity. The literature review found small businesses possess many commonalities (da Conceicao, 2012; Garcia at al., 2012; McLarty et al., 2012; Wellalage & Locke, 2011; Wilkin, 2012). Therefore, generalizing research results from the survey respondents to the general population of small businesses in the state of New Jersey was possible when conditions of statistical reliability and external validity exist. Campbell and Stanley (1966), Norman (2010), and Walliman (2011) noted threats to external validity arise primarily through faulty sampling methodology, the influence of unknown factors upon the participants, changes in participant responses over time, and poor process descriptions that hinder retesting.

A selection of participants from a sample frame of small, privately held businesses in New Jersey provided responses to the research survey. The process eliminated the risk of selection bias. The sampling methodology used in this study consisted of selecting a statistically valid sample of potential respondents from the sample frame of small, privately held manufacturing businesses in New Jersey. The sample was sufficiently large to reduce the risk of sampling error (Dolnicar & Grun, 2012) and selection bias (Campbell & Stanley, 1966). Using a limited number of close-ended questions in the survey mitigated the influence of external factors on participant responses (Walliman, 2011).

Transition and Summary

This section provided explanations of why the positivist research methodology and quantitative research design methodology were appropriate for the study. I proposed to use a pilot survey to establish reliability and validity of the survey design and, as necessary, improve the survey instrument and administrative process. I planned to analyze the results from the IRB pre-approved pilot study to verify the methodology and research design prior to commencement of the main study. Analysis of the complete set of survey responses used the proven quantitative technique of chi-square analysis to generate results that either support or reject the null research hypothesis.

Section 3 presents the results of testing the research data, followed by an analysis of how the results supported or rejected the null hypothesis. I then discuss the application of the findings to professional practice and implications for social change. I also present recommendations for action and further research, followed by overall reflections on the research and its findings.

Section 3: Application to Professional Practice and Implications for Change

The purpose of this quantitative, correlational research study was to examine the relationship between owner-manager separation in small businesses in New Jersey and Pennsylvania and the structure of IT governance in those businesses. This section includes an overview of the study, presentation of findings, and the applicability of the findings to professional practice and social change. Next, I present recommendations for action based on the study results. Finally, I address recommendations for further study, reflections by the author, and a summary and conclusions for the study.

Overview of Study

This study provided me with data to examine the extent and nature of the association that exists between owner-manager separation in small businesses and the structure of IT governance in those businesses. Findings from the study generated information allowing me to answer the research question: Is there a statistically significant association between the type of owner-manager separation and the structure of IT governance within small businesses operating in New Jersey and Pennsylvania? The research data provided information to assess the research hypotheses:

$H1_0$: There is no statistically significant association between the type of owner-manager separation and the structure of IT governance within small businesses in New Jersey and Pennsylvania.

$H1_a$: There is a statistically significant association between the type of owner-manager separation and the structure of IT governance within small businesses in New Jersey and Pennsylvania.

After analysis of the empirical evidence presented in this section, I concluded that the data supports the null hypothesis. There was no significant association between the type of owner-manager separation and the structure of IT governance within small businesses in New Jersey and Pennsylvania. Survey results indicate that a centralized form of IT governance is the most prevalent IT governance archetype found in small businesses. Researchers, business leaders, and management consultants can use the research results in promoting use of the centralized IT governance archetype in small businesses. More widespread and efficient use of IT governance might help small business owners to lower operating costs, reduce opportunities for fraud and waste, and improve competitive advantage. Social benefit could arise from improved profitability and growth of small businesses.

Presentation of the Findings

Changes in Methodology

After receiving Walden IRB approval to conduct the study (IRB 11-08-13-0239905), I attempted a pilot test to determine the viability of the survey and statistical analysis. After an initial random selection of 466 participants generated less than a 1% response rate, I invited the entire population of 2,074 small business owners and managers from New Jersey to participate in the pilot survey. The number of completed surveys was not sufficient to meet the minimum pilot testing criteria of 158 completed surveys. Based on the low survey completion rate, I requested IRB to authorize a change in methodology to (a) combine the surveys from the pilot test phase with additional completed surveys from the main test phase; (b) change the chi-square effect size from

medium (.3) to medium-high (.4); and (c) lower the statistical power from .95 to .85. Using the G*Power 3.1 Goodness of Fit test, the revised methodology required 77 completed surveys. Table 10 illustrates the results of the original and revised statistics used in the analysis of survey data. The committee and the IRB approved the change in methodology.

Table 10

*Original and Revised Sample Size Calculations Using G*Power 3.1*

χ^2 tests - Contingency tables			
		Original	Revised
Input	Effect size (ω)	.30	.40
	α err prob	.05	.05
	Power (1-β err prob)	.90	.85
	df	3	3
Output	Noncentrality parameter λ	14.22	12.32
	Critical χ^2	7.81473	7.81472
	Total sample size	158	77
	Actual power	.90108	.85059

Additional completed surveys from the main test included small business owners and managers in New Jersey and Pennsylvania. I sent 1,623 survey invitations to small business owners and managers in Pennsylvania, using the selection criteria outlined in Section 2. Combined with the 2,074 survey invitations sent to New Jersey small business owners and managers, the total survey invitations sent were 3,697. The survey period was ended when no new responses were received over a period of 7 business days. The invitations resulted in 103 surveys initiated, a response rate of 2.8%. Of the 103 submitted surveys, 24 were either incomplete or noted not to include in survey results,

leaving 79 usable surveys for testing. Table 11 shows the survey responses for small business owners and Table 12 shows the survey responses for small business managers.

Table 11

Survey Responses - Small Business Owners

IT governance archetype	Decision domains					
	IT principles	IT infrastructure strategies	IT architecture	Business application needs	IT investment	Total
Centralized	30	29	26	22	36	143
Decentralized	1	4	3	5	0	13
Federal	12	11	14	18	9	64
None	3	2	3	1	1	10
Total	46	46	46	46	46	230

Table 12

Survey Responses – Small Business Managers

IT governance archetype	Decision domains					
	IT principles	IT infrastructure strategies	IT architecture	Business application needs	IT investment	Total
Centralized	21	21	17	15	23	97
Decentralized	1	2	0	4	0	7
Federal	9	9	14	14	8	55
None	2	1	2	0	2	7
Total	33	33	33	33	33	166

Summary of Quantitative Data

I used a 2 X 4 chi-square test for independence to examine the relationship between owner-manager separation and IT governance archetypes used in their businesses. The results were insignificant, $\chi^2(3, N = 396) = 1.523, p > .05$, Cramer's V =

.062. The results produced data that support the null hypothesis of no statistically significant association between the type of owner-manager separation and the structure of IT governance within small businesses in New Jersey and Pennsylvania. Table 13 is the contingency table for the survey responses. Table 14 shows the results of the chi-square test.

Table 13

Contingency Table from Survey Responses

	IT governance archetypes				
	Centralized	Decentralized	Federal	None	Total
Owner	143	13	64	10	230
Manager	97	7	55	7	166
Total	240	20	119	17	396

Table 14

Chi-Square Test Results

	Value	*df*	*p* (2-sided)
Pearson chi-square	1.523[a]	3	.677
Likelihood ratio	1.524	3	.677
Linear-by-linear association	.721	1	.396
Cramer's V	.062		
N of valid cases	396		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.89.

In addition to the chi-square results, Figure 4 further illustrates the similarities in the responses of both owners and managers. Figure 4 shows the type of IT governance archetype noted by small business owners and managers is similar between the two groups of respondents. The centralized form of IT governance received the most survey

responses from both small business owners and managers. Responses for the centralized IT governance archetype exceeded the other IT governance archetypes by a two-to-one margin.

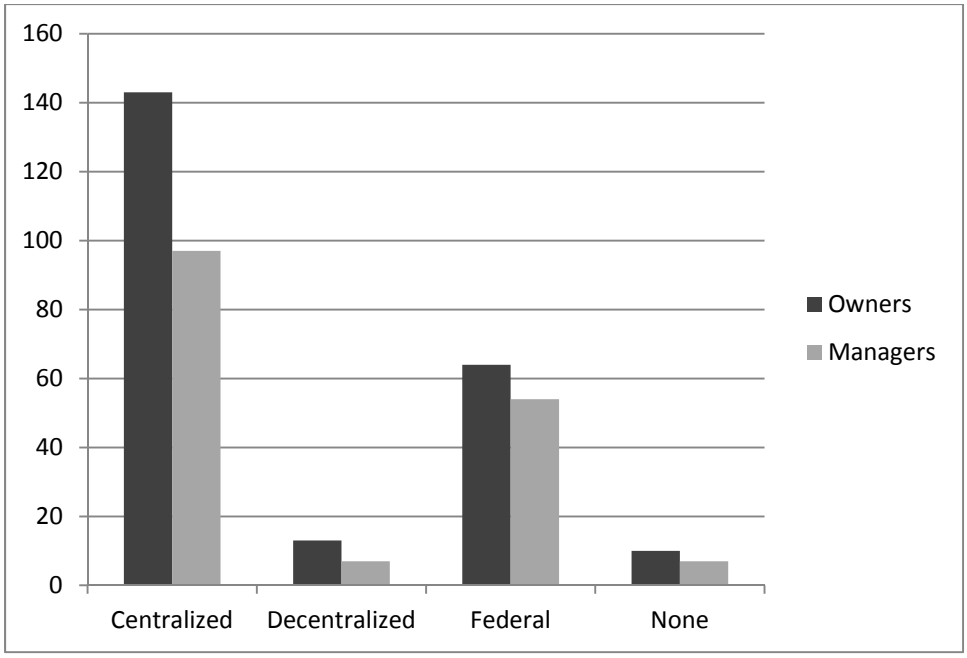

Figure 4. Responses by IT governance archetype.

Figure 5 illustrates that the centralized and federal governance archetypes are the most frequent forms of IT governance among the small business owners and managers responding to the survey. Figure 5 also shows that the centralized archetype is the heavily favored structure of IT governance in small businesses. Fiegener (2010) noted this concentration of control in small businesses, where owners also act as operational managers. The tendency towards centralization of IT governance comes as a surprise because it indicates that even when owners retain others to manage components of their business, these owners still wield the ultimate decision-making power within their businesses. These findings contradict the outcome from a limited research study on small

business IT governance (Tan, Teo, & Lai, 2011) which noted that IT managers should make decisions on IT architecture and IT infrastructure. The survey results and chi-square test show that small business owners are involved in all decisions affecting IT. The results support prior research showing that small business owners are deeply involved in operational decision-making (Arvind et al., 2010; Devos et al., 2012; Wellalage & Locke, 2011). The results also reinforce the research by Ko and Fink (2010), who found that senior executives (which also include owners) preferred a centralized IT governance structure.

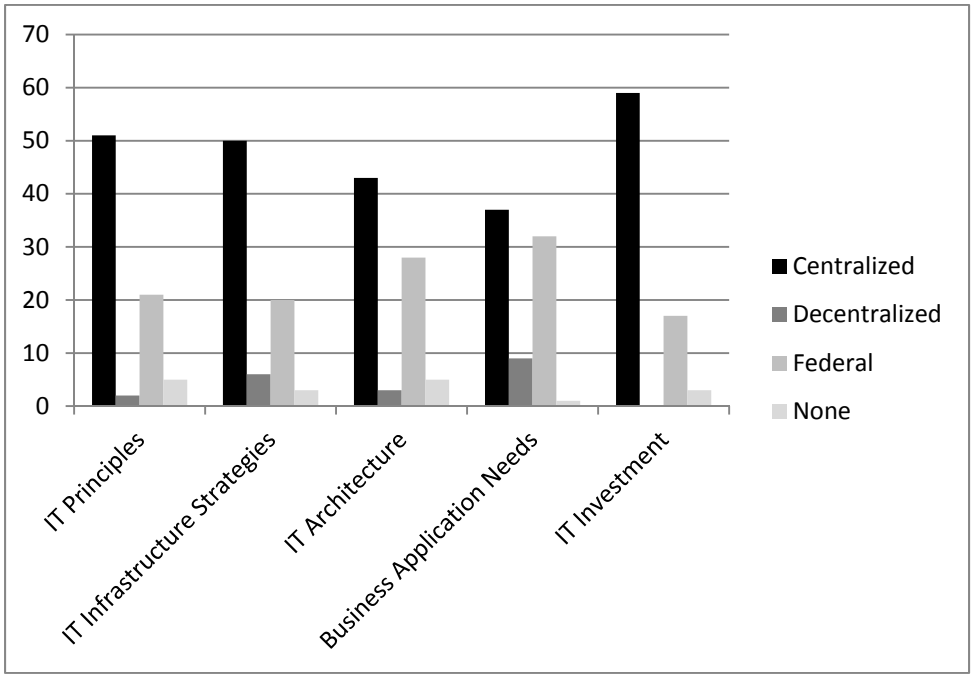

Figure 5. IT governance archetypes for IT decision domains.

The high concentration of small business owner control noted in the test results appears to contradict agency theory, which posits that owners would cede management responsibilities to the line managers hired to run the day-to-day operations of the

businesses (Connelly, Hoskisson, Tihanyi, & Certo, 2010). However, the reader should remember that small businesses tend to be resource constrained (Stefanovic & Milosevic, 2011) and that technology is a major expense. By retaining control over business decisions affecting information technology, small business owners reduce the agency costs associated with monitoring the IT governance decisions made by their managers. From a resource-based theory perspective, the direct (centralized) control over IT governance by small business owners is a form of aligning technology (a critical resource) with business strategy (Henry, 2010).

Applications to Professional Practice

The purpose of this study was to ascertain whether a correlation exists between owner-manager separation and IT governance structure in small businesses. The survey information generated from this study allows me to add to the body of knowledge on how owners and managers in smaller firms govern their IT environments. The research results could assist scholars to further the understanding of small business management by providing quantitative data showing the influence of small business owners on the governance of information technology.

The survey results indicate that ownership wields most of the decision-making authority over the governorship of information technology in small businesses. The condition also appears to exist in those businesses where the owners retain agents (managers) to assume responsibility for critical business functions. Small business owners control the financial aspects of their firms. The control of finances, coupled with the smaller size of their organizations, gives owners major influence over the purchase

and management of the IT systems used within their businesses. He and Sommer (2010) noted that as a business increases in size, the greater its agency costs rise due to monitoring the greater number of outside directors and inside managers. McElheran (2012) wrote that decentralized IT governance leads to increased costs. An owner of a small, resource-constrained business can limit monitoring costs by retaining direct, centralized control over the IT environment. In doing so, small business owners reduce monitoring costs, thus lowering their overall agency costs.

The results of this study indicated that even when small business managers maintain decision-making authority in IT governance, the decisions occur in concert with the small business owners. The results correspond with literature noting owner involvement is more prevalent in small businesses than in larger businesses (Nagar et al., 2011; Wellalage & Locke, 2011). Lindgren (2012) found small business owners to be more reactive than proactive, focusing on short-term task oriented management. Owner involvement in business operations and the prevalence of short-term goal attainment are conditions favoring a centralized form of IT governance. The state corresponds with agency theory, which asserts that uncertainty increases centralization (Fama & Jensen, 1983). Persons involved in the creation and monitoring of IT governance in small business (owners, senior managers, auditors, and management consultants) should be aware of the prevalence of centralization of control in these types of firms.

Although members of the small business community are becoming more aware of the importance of IT governance, researchers have shown both ownership and management of small businesses tend to have a low level of IT awareness, experience,

and expertise (Berte et al., 2010; Devos et al., 2009; Hang & Wang, 2012; Huang et al., 2009). Other researchers have shown that a high level of IT governance knowledge is a critical factor in governance effectiveness (Ali, Green, & Robb, 2013), even though other authors showed 30% of small businesses do not have IT governance processes in place (Debreceny, 2013). Survey results from this study indicated that small business owners should become more aware of and adept at the application of proper governance techniques over their information technology environment.

Implications for Social Change

Small business owners are one of the main drivers of entrepreneurship, job growth, and innovation in the global economy (Cole, 2013; Neumark et al., 2011; Stefanovic & Milosevic, 2011). I hope that results from this study will contribute to a better understanding of IT governance in small businesses, leading to greater adoption of sound IT governance practices within the small business community. The results of this study indicate to me that small business owners exert great influence over IT governance processes within their businesses despite hiring professional managers who are responsible for managing the IT governance process. The promotion of IT governance to small business owners (who control the IT decision-making in their businesses) can result in increasing the effective use of technology within those businesses. More effective use of technology could lead to cost savings and increase operational efficiencies. Through effective IT governance in small businesses, social change could result from (a) increased investor profits; (b) improved competitive advantage; (c) increased innovation; and (d) the potential for increased employment opportunities.

The most important contribution made by small businesses to social change is the ability to create new jobs. Neumark et al. (2011) found that small business owners create a greater number of new jobs each year than new jobs created by leaders of larger businesses. The effective governance of information technology can enable efficient use of the technology to achieve innovation and production faster and at lower cost. Through proper IT governance, effective alignment of IT with business goals has a positive effect on a firm's value chain (Tallon, 2012). More effective and efficient operation of small businesses could result in greater demand for their products and services, resulting in increased demand for workers. Small business owners also tend to source their products and services locally (Neumark et al., 2010); thus, the growth of small businesses creates benefits for the local community.

Recommendations for Action

My experience in the information technology area, coupled with the knowledge gained through this project, has strengthened my belief in the importance of effective and efficient IT governance in small businesses. As discussed in the literature review, small business owners in general suffer from lack of attention to IT governance (Dai, 2010; Elmazi et al., 2011; Debreceny, 2013). The condition may occur from a lack of technology expertise in small business owners and managers, coupled with the demands of operating a business with limited financial resources (Ahmad et al., 2012; Devos et al., 2012; McLarty et al., 2012; Wilkin, 2012). I recommend a process for educating small business owners and managers on IT governance processes. The education process could come from literature, conferences, and training seminars available through local

academic institutions and from various small business associations. The training should emphasize the need for small business owners and managers to rely on technology experts to determine IT architecture and IT infrastructure design and governance. IT governance training is critical because prior research noted small business owners generally lack a high level of IT knowledge (Devos et al., 2012). To accomplish the educational process, I recommend that small business owners cede some measure of IT governance control to designated managers.

In addition to small business owners and managers, attention to IT governance in small businesses should receive more attention from academics and business consultants. The area of IT governance in small business has received little scholarly attention in the academic community, despite the acknowledged importance of small businesses to the national economy. Devos et al. (2012) wrote that researchers should focus on small businesses as distinct business forms, not as smaller versions of large organizations. The lack of research into small business IT governance has resulted in a lack of information on how IT governance creates economic value in small businesses (Wilkin, 2012). Small business owners often retain consulting services; the consultants and advisors should devote more emphasis on IT governance in small businesses because the consultants and advisors are in a position where they can influence IT governance development.

Recommendations for Further Study

Results from this study can serve as a springboard for future in-depth studies of IT governance in small businesses. Research could begin into small business owners' implementation of the various IT governance archetypes (centralized, decentralized, and

federal). A key question for future research is the effectiveness of IT governance in small business. Such research would take the form of measuring the level of influence the different IT governance archetypes have on small business growth and economic performance. The first issue to address is developing an operational definition of *effective IT governance*, coupled with reliable measurement criteria for assessment.

Future researchers should also delve deeper into the agency issues of owner-manager separation in small businesses outside of the technology area. Through analysis of this study's results, I noted that small business owners maintain influence over IT governance decisions despite ceding responsibility to managers for operational components of their business. The departure from pure agency theory (Fama & Jensen, 1983) should provide a rich foundation for management research that may contribute to the body of knowledge on small business management.

Although there are several widely used IT governance frameworks, none of the frameworks tailors their processes to the unique agency issues and operating conditions inherent in small businesses (Devos et al., 2012). The results of this study showed small business ownership is involved in most, if not all of IT governance processes in their businesses, and that the centralized governance structure is the most commonly used for IT governance. The results support a recommendation by Arosa et al. (2010) to analyze ownership concentration as an internal control process. Further work is necessary either to define a small business IT governance framework or to adapt an existing framework to better address the unique operational conditions present in small businesses.

Another subject for future research should be an analysis of the level of IT governance knowledge among small business owners. Ali, Green, and Robb (2013) found that a high level of IT governance knowledge was a critical factor in governance effectiveness. Today's small business owners may be more technology aware than their predecessors, but this does not indicate the owners are aware of the components and methods for governing their business technology environment (Debreceny, 2013; Terziovski, 2010). Future researchers could identify knowledge gaps in IT governance among small business owners, leading to addressing the gaps to improve the effectiveness of IT governance in small businesses.

This research used a subset of small manufacturing businesses within New Jersey and Pennsylvania. The research results may not be applicable to all American businesses or to non-American business cultures (Po Li, 2010). Future researchers could expand the subset to include other types of small businesses in wider geographic areas to expand the sample size. In addition, future researchers could employ a mixed methods approach to provide interpretation and depth to small business owner and manager responses to the survey questions used in this study. A mixed methods study would enable a deeper understanding of *why* certain IT governance archetypes are preferred in small businesses.

Reflections

My personal and professional interest in IT governance was the driving force that lead me to undertake this study. Through the literature review and the analysis of the research results, I now have a much deeper understanding of IT governance and small business management. I also have a broader and deeper understanding of the quantitative

research process, which will serve me in both my current profession and in future research endeavors.

The greatest challenge faced in this study was the difficulty in obtaining a sufficient number of completed surveys to meet the minimum criteria for reliability and validity. I deliberately kept the survey brief to encourage participation and to prevent survey breakoff, but this was not enough inducement for the survey population. The use of compensation for survey participation may have increased the response rate, but this was not feasible due to the necessity of maintaining the participant's anonymity. Due to the small number of survey responses, the initial plan for a pilot test followed by a main test was not practicable. However, I was able to maintain the original research methodology of quantitative analysis.

I began this research project with no preconceived biases other than a desire to seek information on sound IT governance practices. Due to the inclusion of small business managers in the survey, my research into agency theory lead me to expect a greater percentage of responses favoring the federal form of IT governance. Therefore, it came as a surprise when the test results showed a pervasive influence by small business owners in the governance of all phases of information technology.

Summary and Study Conclusions

The purpose of this quantitative, correlational study was to examine the extent and nature of the association that may exist between owner-manager separation in small businesses and the structure of IT governance in the businesses. The study provided data used to assess whether there is a statistically significant relationship between owner-

manager separation and the structure of IT governance in small businesses. Section 1 of the study introduced (a) the background of the problem; (b) the research question and associated hypotheses; (c) the business and social benefit that could derive from the study results; and (d) an extensive literature review to support the purpose of the study. Section 1 also introduced the theoretical foundations of agency theory, stakeholder theory, and resource-based theory to understand the relationship between owner-manager separation and the structure of IT governance in small business.

Section 2 of the study provided (a) the study methodology; (b) data collection instrument; (c) data collection organization; (d) data analysis technique; and (e) reliability and validity. The study methodology used random selection of a population of small business owners and managers. A modified version of the IT Governance Arrangements Matrix (Weill & Ross, 2004) provided the basis for survey questions regarding the IT governance structure (archetype) used in making key decisions on information technology. I used an online web-based survey hosted by SurveyMonkey collected response data from the participants, and SPSS Statistics 2.1 software application to analyze the collected survey data.

Section 3 presented the results of the study. A pilot test of the survey failed to generate an adequate number of completed surveys. IRB permitted the consolidation of pilot study results into the main study, along with a modification of the survey's statistical power. Chi-square analysis of the 79 completed surveys assessed support for the hypotheses presented in this study. The results showed the relation between the variables of small business owners and managers was not significant, $_X^2(3, N = 396) =$

1.523, $p > .05$, Cramer's V = .062. The results support the null hypothesis of no statistically significant association between the type of owner-manager separation and the structure of IT governance within small businesses in New Jersey and Pennsylvania.

I hypothesized the involvement of small business managers, acting as the owners' agents, would have no effect on the structure of IT governance in small business. Analysis of the research data supported this null hypothesis. In addition to supporting the null hypothesis, my analysis of the data generated from this research showed evidence of pervasive small business owner involvement in decisions affecting IT governance. The ownership involvement occurs despite the retaining of managers to act as the owners' agents.

Recommendations stemming from this research include additional in-depth study of IT governance in small business, an area where extant research is limited. Additional researchers should delve into the agency issues presented by owner and manager separation in small businesses. Finally, further research into assessing the level of IT governance knowledge among small business owners could help to measure the effectiveness of IT governance implementation in small businesses.

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Appendix A: Permission for Use of Drivers of IT Governance

Subject : RE: [No Subject]
Date : Tue, Jul 03, 2012 04:17 AM CDT
From : Alan McSweeney <Alan@alanmcsweeney.com>
To : Jeffrey Saffer <jeffrey.saffer@waldenu.edu>
CC : jeffrey.saffer@experis.com <jeffrey.saffer@experis.com>

Feel free to use any of the material as you wish.

Regards, Alan

alan@alanmcsweeney.com
086 239 1508

From: Jeffrey Saffer [jeffrey.saffer@waldenu.edu]
Sent: 03 July 2012 01:58
To: Alan McSweeney
Cc: jeffrey.saffer@experis.com
Subject: [No Subject]

Dr. McSweeney,

I am a doctoral student at Walden University. I have read your 2011 article "Practical Information Technology Governance" and would like to use the drivers of IT governance shown on page 5 as a table in my doctoral study (with proper citation). Can I have your permission to use the information?

Regards,
Jeffrey Saffer
Doctoral Researcher
Walden University
jeffrey.saffer@waldenu.edu

Appendix B: IT Governance Arrangements Matrix

The matrix illustrates what decisions must be made and who will be making them regarding IT governance within an enterprise.

		Decision Domains				
		IT Principles	**IT Infrastructure Strategies**	**IT Architecture**	**Business Application Needs**	**IT Investment**
IT Governance Archetype	**Business Monarchy**					
	IT Monarchy					
	Feudal					
	Federal					
	Duopoly					
	Anarchy					
	Don't Know					

Weill and Ross, 2004, p. 11. Permission to use is shown in Appendix D.

Decision Domains (what technology decisions need to be made)

IT Principles – the policies and standards used to clarify the business role of IT.

IT Architecture – Defining integration and standardization requirements.

IT Infrastructure – Determining shared and enabling services.

Business Application Needs – Specify the business needs for IT applications.

IT Investment – Choosing IT initiatives to fund and how much to spend.

Governance Archetypes (who makes and implements the technology decisions)

Business Monarchy – Business owners or top managers only.

IT Monarchy – IT specialists.

Feudal – Each business unit making independent IT decisions.

Federal – Combination of the corporate center and business units, with or without IT personnel involved.

IT Duopoly – IT group and one other group (top management or business unit leaders).

Anarchy – Isolated individual or small group decision making.

Appendix C: Modified IT Governance Arrangements Matrix

		Decision Domains				
		IT Principles	**IT Infrastructure Strategies**	**IT Architecture**	**Business Application Needs**	**IT Investment**
IT Governance Archetype	**Centralized**					
	Decentralized					
	Federal					
	None or Don't Know					

Decision Domains (what technology decisions need to be made)

IT Principles – the policies and standards used to clarify the business role of IT.

IT Architecture – Defining integration and standardization requirements.

IT Infrastructure – Determining shared and enabling services.

Business Application Needs – Specify the business needs for IT applications.

IT Investment – Choosing IT initiatives to fund and how much to spend.

Governance Archetypes (who makes and implements the technology decisions)

Centralized – Business owner or top management only.

Decentralized – Each business unit making IT decisions, with or without IT personnel involvement.

Federal – Combination of the corporate center and business units, with or without IT personnel involved.

None or Don't Know – No evidence of any type of governance archetype.

Appendix D: Permission to use the IT Governance Arrangements Matrix

Subject : Re: IT Governance Arrangements Matrix
Date : Thu, Nov 01, 2012 07:42 PM CDT
From : Stephanie L Woerner <woerner@mit.edu>
To : Jeffrey Saffer <jeffrey.saffer@waldenu.edu>

Hi Jeffrey,

Yes, please use the modified version.

Stephanie

On Nov 1, 2012, at 8:39 PM, Jeffrey Saffer wrote:

> Hi Dr. Warner,
>
> After some additional work, I have determined that a modified version of the IT Governance Arrangements Matrix would be suitable for my research. I would like to combine several of the governance archetypes to better match my research hypotheses. Is it permissable to use the modified version in my research?
> Regards,
>
> Jeffrey Saffer
> Doctoral Learner
> Walden University
> jeffrey.saffer@waldenu.edu
>
> Original E-mail
> From : Stephanie L Woerner [woerner@mit.edu]
> Date : 07/18/2012 08:07 PM
> To : Jeffrey Saffer [jeffrey.saffer@waldenu.edu]
> Subject : Re: IT Governance Arrangements Matrix
>
> Dear Mr. Saffer,
>
> You may use the IT Governance Arrangements Matrix, with appropriate citation. Please cite the version in Peter's IT Governance Book (let me know if you need more information). In addition, we'd love to see a copy of your research once it is complete.
>
> Best regards,
> Stephanie
>
> Stephanie L. Woerner, Ph.D.
> Research Scientist
> Center for Information Systems Research (CISR)
> MIT Sloan School of Management
> cisr.mit.edu
> 617-452-3222
> woerner@mit.edu

Appendix E: Survey Consent

Informed Consent Information

Before you agree to participate in this research survey, it is important that you read and understand the information shown below. This statement describes the purpose, procedures, benefits, risks, discomforts, and precautions of the research effort. It also describes your rights to withdraw from the survey at any time. No guarantees or assurances are made as to the results of the study.

Title of Research: Owner-Manager Separation and the Structure of IT Governance in Small Business

Researcher: Jeffrey Saffer, Doctoral Candidate, Walden University

Purpose and Procedures

Participants are owners and senior managers of small, privately owned manufacturing businesses in New Jersey. The research study design examines the relationship between owner-manager separation and the structure of information technology (IT) governance in small business. Participation in the study involves completion of an Internet-based survey, which will take approximately 10 to 15 minutes to complete. There is no compensation offered for taking the survey.

Risks and Discomforts

There are no risks or discomforts anticipated from your participation in the study.

Benefits

The anticipated benefits of participation is the opportunity to provide information which, when combined with other survey participants' information, will add to the existing body of knowledge regarding IT governance and small business management. The results of the research will be published in the form of a doctoral research project and may be published in a professional journal or presented at professional meetings. The information will assist IT managers, business managers, and business consultants in obtaining a greater understanding of IT governance and small business management.

Confidentiality

The information gathered during the research study will remain secured in an access-restricted computer file. Only the researcher, the researcher's doctoral committee members, and Walden University IRB will have access to the research study data and associated information. The survey does not ask for or obtain identification of survey participants, their businesses, or their positions within their businesses. The survey also does not ask for information on business performance and finances. At the completion of the research study, the survey data will be stored on a disk file in a bank safe deposit box for a period of 5 years, after which the disk will be destroyed. During the 5-year retention period, the survey data will be available to other researchers upon written request. Participant identifying information (names, e-mail addresses, businesses) will not be shared with others.

Withdrawal Without Prejudice

Participation in the research survey is voluntary and refusal to participate will incur no penalty. Survey participants will not receive any compensation or other remuneration. Each participant is free to withdraw consent and discontinue participation at any time during survey completion without prejudice.

Further Questions

Should you have any questions about this study, you can contact the researcher at Jeffrey.Saffer@waldenu.edu. If you have any questions about your rights as a participant, you can contact the Walden University Research Participant Advocate at 1-800-925-3368 ext. 3121210.

Please print and keep a copy of this consent information for your records. The first question in the research survey requires you to indicate whether you have read and understood the contents of this information.

Appendix F: Survey Questions

A. I have read and understood the Informed Consent Information. I acknowledge my participation in this survey is voluntary and I have not received any inducements or incentives to participate.
   1) Yes.
   2) No.

B. My position in the business is:
   1) I am the business owner (sole owner or majority shareholder).
   2) I am a senior business manager.

C. Who is responsible for creating and implementing policies and standards used to clarify the role of IT in your business?
   1) The business owner or senior management personnel.
   2) Each business unit according to its own needs.
   3) A combination of the business owner, senior management personnel, and business unit management personnel.
   4) No person or group is responsible for this.
   5) I don't know.

D. Who is responsible for determining the need for shared or enabling IT services within the business?
   1) The business owner or senior management personnel.
   2) Each business unit according to its own needs.
   3) A combination of the business owner, senior management personnel, and business unit management personnel.
   4) No person or group is responsible for this.
   5) I don't know.

E. Who is responsible for identifying and implementing IT integration and standardization within the business?
   1) The business owner or senior management personnel.
   2) Each business unit according to its own needs.

3) A combination of the business owner, senior management personnel, and business unit management personnel.
4) No person or group is responsible for this.
5) I don't know.

F. Who is responsible for identifying and specifying the business needs to be addressed by IT applications in your business?
1) The business owner or senior management personnel.
2) Each business unit according to its own needs.
3) A combination of the business owner, senior management personnel, and business unit management personnel.
4) No person or group is responsible for this.
5) I don't know.

G. Who is responsible for selecting which IT initiatives to fund in the business and how much to spend on the initiatives?
1) The business owner or senior management personnel.
2) Each business unit according to its own needs.
3) A combination of the business owner, senior management personnel, and business unit management personnel.
4) No person or group is responsible for this.
5) I don't know.

H. I have completed all questions in the survey and agree to have the responses included in the assessment of survey results.
1) Yes.
2) No.

Appendix G: Survey Invitation E-mail

Subject	**Survey Invitation**
From	Jeffrey Saffer <jeffrey.saffer@waldenu.edu>
Date	
To	

Greetings,

I am a doctoral student at Walden University. I am completing my doctoral research project on the effect of owner-manager separation on the structure of information technology governance in small business. My project uses survey data from small business owners and managers, and I invite you to participate in the survey.

The survey consists of several questions with multiple-choice responses. It should take you no more than 5 to 10 minutes to complete. The survey should not cause you any physical or psychological discomfort to complete. The survey results are completely confidential – it does not ask for identifying information about you, your organization, or your organization's business. The survey is available through the Internet enabling you to complete it at any time. Research results will be available to you upon request after the completion of the research

Participation in the survey is voluntary with no compensation offered to survey participants. If you are willing to participate in my research project, please access the survey at http://www.surveymonkey.com/s/LZPQ792. Should you have any questions regarding the research or the survey, please contact me at my e-mail address shown below. Alternately, you may also contact the Walden University Research Participant Advocate at 1-800-925-3368 ext. 1210 to discuss your rights as a participant.

Best regards,

Jeffrey Saffer
Doctoral Student
College of Management & Technology
Walden University
jeffrey.saffer@waldenu.edu

Appendix H: Survey Invitation Followup E-mail

Subject	**Survey Invitation**
From	Jeffrey Saffer <jeffrey.saffer@waldenu.edu>
Date	
To	

Dear Sir/Madam,

Several weeks ago, I sent you an invitation to participate in a research survey for my doctoral project. My project uses survey data from small business owners and managers. If you have already completed the survey, I thank you for your participation. If not, I invite you again to take the survey.

The survey consists of eight questions with multiple-choice responses. It should take you no more than 5 to 10 minutes to complete. The survey should not cause you any physical or psychological discomfort to complete. The survey results are completely confidential – it does not ask for identifying information about you, your organization, or your organization's business. The survey is available through the Internet enabling you to complete it at any time. Research results will be available to you upon request after the completion of the research

Participation in the survey is voluntary with no compensation offered to survey participants. If you are willing to participate in my research project, please access the survey at http://www.surveymonkey.com/s/LZPQ792. Should you have any questions regarding the research or the survey, please contact me at my e-mail address shown below. Alternately, you may also contact the Walden University Research Participant Advocate at 1-800-925-3368 ext. 1210 to discuss your rights as a participant.

Best regards,

Jeffrey Saffer
Doctoral Student
College of Management & Technology
Walden University
jeffrey.saffer@waldenu.edu

Appendix I: Layout of Survey Questions and Responses

Survey Questions

Response	A	B	C					D					E					F					G					H
			1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
n	1 or 0	1 or 0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1 or 0

*Responses are 1 if choice is selected or 0 if choice is not selected.

Curriculum Vitae

Jeffrey S. Saffer

Education

Doctor of Business Administration, 2010-2014
Information Systems
Walden University, Minneapolis, MN

Master of Science, 1991-1993
Information Systems Management
New Jersey Institute of Technology, Newark, NJ

Master of Education, 1972-1973
Secondary Education
University of West Alabama, Livingston, AL

Bachelor of Arts, 1968-1972
History
New Jersey City University, Jersey City, NJ

Professional Experience

Experis Finance, New York, NY, 2010-present
Service Delivery Manager, Risk Advisory Services

University of Phoenix, Phoenix, AZ, 2002-2005
Adjunct Faculty, Online MBA Program

Morgan Stanley, New York, NY, 2000-2010
Senior IT Audit Manager

Westdeutsche Landesbank, New York, NY, 1998-2000
Vice President, Internal Audit

Bank of America Merrill Lynch, New York, NY, 1994-1998
Senior IT Audit Manager

Certifications

Certified Information Systems Auditor (Information Systems Audit and Control Association)
Certified Fraud Examiner (Association of Certified Fraud Examiners)

Professional Affiliations

Information Systems Audit and Control Association, New Jersey Chapter – Board of Directors
Association of Certified Fraud Examiners - Member
Institute of Internal Auditors - Member