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Relationship Between Regulatory Compliance Cost, Operation Cost, and Profitability of Credit Unions

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2019

Abstract

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MBA, Our Lady of the Lake University, 2008

BS, Sam Houston State University, 2006

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

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Abstract

The decline in the profitability of credit unions with less than $10 million in assets harms the number of small credit unions available to serve local communities. Grounded in the financial intermediation theory, the purpose of this quantitative correlational study was to examine the relationship between regulatory compliance costs, operation costs, and profitability. The population of this study consisted of federally insured credit unions with less than $10 million in assets and located in the state of Texas. Archival data from the National Credit Union Administration database were collected and analyzed. Multiple regression was used to identify a statistically significant predictive model, F (2, 49) = 3.834, p = .028, R^2 =.135. The implications for positive social change include the potential for credit union managers to improve decision-making processes related to current and future operations and investments, which could increase profitability and contribute to the financial prosperity of employees, employees' families, communities, and local economies.

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Dedication

I dedicate this study to my parents who had always supported me and encouraged me to pursue my education. Their love and support have always touched my life. I also dedicate this study to my wife and daughters who have supported me during my doctoral study and have been understanding and patient. Thank you, God, for blessing me and my family and giving us the willpower during my doctoral study.

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Table of Contents

List of Tables

List of Figures

Section 1: Foundation of the Study

Introduction

Following the 2008 global financial crisis, business leaders, regulators, and scholars have become more aware of financial effects regulatory compliance and operation costs may have on the financial performance of organizations (Ned, 2017). Business leaders and policy makers should be mindful of the potential effects to organizations' financial performance, when introducing large scale financial regulations as the effects on financial performance and operation cost can vary depending on the size of firms (Ned, 2017). Researchers who have conducted studies about profitability and financial regulations have generated varied results (Lamb, Harper, Minnis, & Yun-Fang, 2013). The financial performance and government regulations of firms remain a concern for business leaders as these leaders attempt to optimize the financial performance of organizations (Elliehausen, 1998).

Background of the Problem

Credit unions play an important role by providing financial services to members and businesses in communities. Researchers have conducted studies about credit unions, the competitive changes in credit unions' industry, and challenges that could affect financial performances of credit unions (McKee & Kagan, 2016). According to Joo, Stoeberl, Liao, and Ke (2017), asset size of credit unions might be a factor in determining operating efficacy. Credit unions with more than $10 million in assets performed better than credit unions with lower assets size (Joo et al., 2017). Credit unions with lower asset

sizes face many barriers to increase efficiency of operation, reduce operating costs, and achieve members' growth (McKee & Kagan, 2016).

Problem Statement

In the United States, where the government mandates regulatory compliance for financial institutions, and the increase in operation and regulatory compliance costs affect profitability of credit unions, the number of credit unions with less than $10 million in assets is declining (Joo et al., 2017). With the changing of government regulations, lower profitability, and the increase of operation costs of financial institutions in the United States, the number of credit unions with less than $10 million in assets has decreased by 80% during the past 23 years (McKee & Kagan, 2016; NCUA, 2017). The general business problem that I addressed in this study was that the increasing costs of regulatory compliance with government regulations and the operating cost of noninterest transactions have reduced the profitability of some credit unions. The specific business problem that I addressed in this study was that some credit union managers do not understand the relationship between regulatory compliance cost, operations cost, and profitability.

Purpose Statement

My purpose in this quantitative correlational study was to examine the relationship between regulatory compliance cost, operation cost, and profitability of credit unions. The independent variables were regulatory compliance cost and operating cost and the dependent variable was profitability. The target population consisted of

federally insured credit unions in the state of Texas. The implications for positive social change include that some credit union managers might improve decision-making processes related to current and future operations and investments, which could increase profitability and contribute to the financial prosperity of employees, employees' families, communities, and local economies.

Nature of the Study

Researchers use three methodologies to conduct studies (a) quantitative, (b) qualitative, and (c) mixed methods (Bryman & Bell, 2015). When using a quantitative method, researchers measure variables and statistically analyze numerical data (Gravetter & Forzano, 2015). In this study, I used the quantitative method. Researchers use qualitative to explore and describe human behaviors (Isaacs, 2014). The qualitative method was not appropriate for this study as I did not need to explore or describe human behaviors. The mixed method is a combination of quantitative and qualitative methodologies in the same study (Yilmaz, 2013). The mixed method was inappropriate for this study as I did not need to combine methods, because I only needed quantitative methodology to address the research question.

Researchers use a correlational design to answer research questions on the relationships between independent and dependent variables (Ballaro & Washington, 2016). The correlational design was appropriate for this study because I examined the significance of the relationship between independent and the dependent variables using statistical data. Researchers use an experimental design to examine cause-effect

relationships among a group of variables (Yilmaz, 2013). Researchers use the quasi-experimental design to determine the significance of cause-effect relationships among variables without manipulating independent variables (Reyes Liske & Holladay, 2016). The experimental design and the quasi-experimental designs were not appropriate for this study as the intent of my study was to examine the relationship between independent and dependent variables without manipulating variables or determining the significance of a cause-effect relationship.

Research Question

Does a linear relationship exist between regulatory compliance cost, operation cost, and profitability of credit unions?

Hypotheses

H_0: A significant linear relationship does not exist between regulatory compliance cost, operation cost, and profitability of credit unions.

H_1: A significant linear relationship does exist between regulatory compliance cost, operation cost, and profitability of credit unions.

Theoretical Framework

Financial intermediation theory (FIT) was the theoretical framework for the proposed study. Curley and Shaw (1960) developed FIT. Cuza (2009) stated that the FIT has a foundation in information asymmetry and method of regulation. Information asymmetry relates to the ability of management in some financial institutions in the United States to avoid adverse selection of poor-quality borrowers by screening clients'

information, which relates to clients' ability to repay borrowed funds (Yu, 2015). The concepts of FIT are (a) information asymmetry in optimal time, (b) method of regulation, and (c) high transaction cost (Allen & Santomero, 1998). In many organizations, new regulations resulted in a multitude of individual compliance projects that consumed a large share of companies' available resources (Adams & Gramlich, 2016). Regulations have affected the function of financial intermediaries (Cuza, 2009). Information asymmetry and regulatory compliance could influence transaction costs, which could affect the profitability of credit unions (Cuza, 2009). FIT was suitable to this study as regulatory compliance cost and operation cost could affect the profitability of credit unions in the United States.

Operational Definitions

Corporate governance: A system designed to evaluate and balance the interests of stakeholders in firms, which could improve regulatory compliance (Filatotchev & Nakajima, 2014).

Financial intermediaries: Firms that borrow funds from consumers and lend to companies for investment (Baradwaj, Shao, & Dewally, 2016).

Financial performance: A measure of a firm uses of assets to generate profits (Klaassen & van Eeghen, 2014).

Information asymmetry: Exists as some information about a company is known only to certain parties and not to other uninformed parties (Chaudhary & Abbas, 2017).

Noninterest income: Percentage of revenues derived from noninterest-generating sources (van Dalsem, 2017).

Return on assets (*ROA*): A profitability ratio measuring the income generated by all assets (Klaassen & van Eeghen, 2014).

Return on equity (*ROE*): An indicator of the financial performance of a firm at generating revenues from shareholder equity (Gugong, Kumai, & Bala, 2015).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are the facts a researcher holds as true without verifications or proof (Nkwake & Morrow, 2016). My first assumption was that the collected data from the archival databases of the national credit union administration (NCUA) was accurate and reliable. My second assumption was that the sample size of the study was enough to detect the significance of a relationship between the variables. My third assumption was that data and the financial reports obtained for this study adhered to regulatory requirements of the United States.

Limitations

Limitations are potential weaknesses of the study, which are out of the control of the researcher (Green, Tonidandel, & Cortina, 2016). A limitation of this study was that the target population consists of federally insured credit unions in the state of Texas, which might not represent all credit unions in the United States. The results of this study

might not represent other industries as banks. Additional variables not mentioned in this study might affect the profitability of credit unions.

Delimitations

Delimitations are a researcher's boundaries to limit the scope of the study (Newman, Hitchcock, & Newman, 2015). A delimitation of this study was that I examined financial reports of federally insured credit unions in the state of Texas. I studied credit unions in the state of Texas with less than $10 million in assets. I inspected past financial performances of credit unions rather than current performances and business practices of the credit unions. In this study, I examined only the relationship between variables not causation.

Significance of the Study

Contribution to Businesses

This study's findings could be of value to business leaders through enabling credit union management to improve business profitability. Understanding the relationship between regulatory compliance cost, operation cost, and profitability could assist management in decision-making and improving management's knowledge of possible future financial benefits. The findings of this study could also enable credit union managers to improve businesses practices by helping management gain knowledge of allocating valuable resources to increase profit and improve financial opportunities.

Contribution to Positive Social Change

The implication for positive social change includes assisting some credit union managers to improve decision-making processes related to current and future operations, investments to increase profitability, and contribute to the financial prosperity of employees, employees' families, communities, and the local economies. Findings of this study might help business leaders improve firms' financial performance and enhance firms' growth opportunities, which can benefit local communities by creating high paying jobs, thus improving families' financial positions, and help reduce the level of poverty.

Review of the Professional and Academic Literature

My purpose in the literature review was to gather related literature to provide a solid foundation for this study. A review of the professional and academic literature involves an in-depth inquiry of various sources as academic journals, financial reports, and dissertations. The gathered literature included 100 resources on FIT, financial performances of credit unions, and banks. In the literature review, I encompassed a critical analysis and synthesis of literature related to the theoretical framework and the study's variables, regulatory compliance cost, operations cost, and profitability of credit unions. In the literature review of this study, I used the Walden University library to gather 100 articles. In the literature review section, there were 89 (89%) peer-reviewed articles. There were 72 (72%) peer-reviewed articles that were published between 2015 and 2019. Peer-reviewed articles with more than 5 years of my study completion date were 11 (11%). There were six (6%) articles from government websites. In the literature

review, I referenced nine doctoral dissertations and two books. More than 85% of articles used in the literature review were within 5 years of my anticipated CAO completion date.

A search of the literature on the topic of the study included keywords related to the financial industry and the variables of the study as (a) corporate governance, (b) credit unions, (c) banks, and (d) financial institutions. I then searched for literature on FIT using key phrases as financial intermediaries and credit unions. Additional key phrases that were used in the search for FIT were (a) information asymmetry, (b) financial performance, (c) noninterest income, (d) return on assets, and (e) return on equity. My search for related literature was composed of inquiries in academic databases including ABI/INFORM complete, ScienceDirect Business, and ProQuest. The publishers used to search for article for this study were (a) World Scientific, (b) Emerald Insight, (c) SAGE, (d) Asers Publishing, (e) Bloomsbury Publishing, (f) PHI Learning, (g) Springer Publishing, (h) Lambert Academic Publishing, (i) Peerage of Science, and (k) EDP Sciences.

McKee and Kagan (2016) postulated that researchers have conducted multiple studies about credit unions and challenges that could affect financial performances of credit unions. Joo et al. (2017) stated that some small credit unions might face financial difficulties as asset sizes of some credit unions could affect profitability. Joo et al. (2017) and McKee and Kagan (2016) argued that credit unions with small assets sizes could face financial complications in achieving efficiency of operation. According to Cuza (2009), regulatory compliance could increase the operation costs of financial institutions.

Eustache (2017) argued that regulatory compliance might increase operating costs of financial institutions, which could increase transaction costs and reduce profitability.

My purpose in this quantitative correlational study was to examine the relationship between regulatory compliance cost, operation cost, and profitability of credit unions. The independent variables were regulatory compliance cost and operating cost and the dependent variable was profitability. Researchers use correlational studies to assess relationships between independent and dependent variables (Ballaro & Washington, 2016). Abdel-Razzaq (2018) claimed that FIT could help in postulating and testing the presumed interrelationships, which could improve the understanding of the phenomenon.

Financial Intermediation Theory

FIT was the theoretical framework for the proposed study. FIT highlights the role of financial intermediaries in the economy (Cuza, 2009). FIT was developed in the 1960s by Curley and Shaw (Cuza, 2009). According to Cuza (2009), the existence of financial intermediaries might be explained by (a) high transaction cost, (b) information asymmetry in optimal time, and (c) method of regulation. According to Cuza, high transaction costs could be influenced by markets' imperfections, which is generated by information asymmetry. High transaction costs could lead to higher fees on financial products (Kalu, Ambrose, & Augustine, 2018). The existence of financial intermediaries might reduce transaction costs on financial services (Cuza, 2009). According to Diamond (1984), information asymmetry is the assumption that when one party of a transaction

could have more useful information than the other party, which could give one party more advantage over the outcome of the transaction. Information asymmetry and regulatory compliance could influence transaction costs (Cuza, 2009).

The presence of asymmetric information might increase transaction costs for clients when dealing with financial institutions (Abdel-Razzaq, 2018). According to FIT's assumptions, the ability of financial intermediaries to specialize in gathering and assessing information about clients could reduce market imperfections, improve allocation of resources, and decrease the cost financial transactions (Abdel-Razzaq, 2018). Regulations could affect the efficiency of some financial intermediaries, which could limit the ability of firms' managers from providing clients with competitive financial products (Cuza, 2009).-According to Obafemi (2012), banks are viewed as mobilizers of funds and loans based on the principals of FIT. Obafemi viewed depositary financial institutions as producers of services related directly to the role of institutions as intermediaries and viewed that financial intermediaries act as delegated monitors on behalf of ultimate savers.

Adams and Gramlich (2016) argued that in many organizations, new regulations might result in a mass of individual compliance projects that might consume a large share of companies' available resources. Regulations have an effect on the function of financial intermediaries as regulations could help in outlining rules and policies that intermediaries must adhere to, which might improve market stability and increase clients' confidence in financial institutions (Cuza, 2009). Market imperfections might create a need for

intermediaries. Diamond (1984) stated that FIT could be used as guidance in designing an effective regulatory framework. Allen and Santomero (1998) argued that FIT might help managers to explain the exchanged relationships and functionalities of capital-providers of funds to capital-seekers. Diamond postulated that intermediary coalitions could achieve economies of scale through the cost advantages financial institutions might achieve as of the scale of operations in certain financial markets. Werner (2016) argued that according to FIT, banks are merely financial intermediaries that gather deposits to create liquidity and lend the funds for long-term to clients.

FIT's concepts might help researchers to focus on the role of financial institutions in an environment where market participants are asymmetrically informed. The presence of asymmetric information increases transaction costs and requires the existence of institutions to keep a check on the behavior of investors (Abdel-Razzaq, 2018). A primary rationale for the existence of financial intermediaries is their superior ability to specialize in assessing the credit risks of potential borrowers (Abdel-Razzaq, 2018). By specializing in gathering information about loan projects, and by permitting pooling and risk sharing among depositors, financial institutions might help reduce market imperfections and improve the allocation of resources (Abdel-Razzaq, 2018).

Researchers studied financial intermediaries and the role intermediaries could have on individuals and economies (Allen & Santomero, 1998). One argument of financial intermediaries by Benston and Smith (1976), and Fama (1980) was based on transaction cost. The notion of the transaction cost does not only include cost of transfers

or foreign exchange, but also those costs of evaluation and monitoring of financial institutions (Cuza, 2009). Rationales for the existence of financial intermediaries are the ability of a financial institution to offer financial services to borrowers at low costs, attract investors by offering high returns on investments, and maintain a profitability level that could sustain current operations and provide future growths (Adams & Gramlich, 2016; Andrieş, 2009; Yu, 2015). Chaudhary and Abbas (2017) stated that, according to FIT, one of the objectives of managers of financial intermediaries is to provide clients with competitive financial products by reducing costs associated with the offered financial services. One advantage of financial intermediaries is the ability to have a competitive edge by providing competitive products to clients and attract potential investors (Andrieş, 2009).

One of FIT's principles is the method of regulation. Financial institutions in the United States must follow set regulations imposed by the government. The purpose of most regulators when imposing new rules is to help stabilize financial markets, which could improve consumers' confidence in the financial system and enhances economic growth (Adams & Gramlich, 2016). Regulations are important to sustain the reliability and integrity of financial markets and gain clients' confidence in financial intermediaries (Balseven, 2016). Halbouni, Obeid, and Garbou (2016) claimed that compliance with existing and new government regulations might have a cost burden on organizations. Adams and Gramlich (2016) postulated that the reduction in the number of banks post the 2008 financial crisis could be related to the increased costs of complying with new

financial rules introduced in response to the 2008 financial crisis. Calomiris (2018) stated that in 2015, a Golden Sachs Global Market Institute's study concluded that financial regulations are major costs to most organizations. Calomiris also argued that regulatory reform had created regulatory costs that big firms could bear more easily than some small financial intermediaries. Romānova, Grima, Spiteri, and Kudinska (2018) claimed that while the development of wider use of financial services by financial intermediaries might benefit a firm's growth, the evolution of financial regulations put firms under additional pressure as compliance costs continue to rise.

Another principal of FIT is transaction cost. Costs of financial products offered by financial intermediaries could influence a firm's profit and growth opportunities (He, Lin, & Wei, 2016). Financial institutions' managers recognize that transaction costs could affect a firm's profitability as a transaction cost is a main factor in determining prices of financial products (He et al., 2016). Financial intermediaries could become more competitive and attract more clients if financial products are offered at a reduced cost (Dauda & Lee, 2016). As transaction cost and information asymmetry could be influenced by different factors in financial markets, where increased uncertainties in a financial market might increase information asymmetry, which could increase costs of transactions (He et al., 2016).

Watse (2017) concluded that information asymmetry could affect relationships between financial intermediaries and borrowers. In addition, Watse argued that financial intermediaries might issue high-interest loans to clients as of information asymmetry,

which could harm firms' growth opportunities by discouraging some clients from purchasing financial products at high costs. The existence of financial intermediaries while minimizing information asymmetry, according to FIT, is valuable to economies and financial markets as borrowers and investors could profit from competitive financial services (Chaudhary & Abbas, 2017; Watse, 2017). Papoutsi (2018) claimed that according to FIT, reduced information asymmetries could strengthen relationships between financial intermediaries and borrowers, which might allow financial intuitions to retain valuable clients and attract other borrowers. Additionally, Ramakrishnan and Thakor (1984) argued that financial literature has identified that relationships between financial intermediaries and borrowers are important in overcoming obstacles arising from information asymmetry.

High transaction cost. High transaction cost is one of the tenets of FIT. He et al. (2016) claimed that business leaders recognize that transaction costs could affect a firm's profitability. Kalu et al. (2018) discussed the effect of FIT's tenets on financial intermediaries. Kalu et al. claimed that market frictions like transaction costs and information asymmetry are critical in influencing the profitability of financial institutions. Kalu et al. postulated that high transaction costs could lead to higher fees for financial products, which would decrease a firm's profit. Cuza (2009) explained that many of high transaction costs are influenced by markets' imperfections, which is generated by information asymmetry. One goal of financial intermediaries is to reduce transaction costs created by information asymmetry or financial regulations (Cuza, 2009).

Allen and Santomero (1998) argued that FIT's assumptions focus on functions of institutions, which could reduce frictions of transaction cost and information asymmetry. Financial intermediaries play an essential role in the economic growth of many countries (Chaudhary & Abbas, 2017). According to FIT, financial intermediaries can provide a competitive edge as financial organizations can acquire low-cost information and minimize transaction costs, which could increase a firm's profit and improve the firm's growth opportunity (Chaudhary & Abbas, 2017).

According to He et al. (2016), business managers acknowledge that transaction costs could affect a company's costs and profitability. High transaction costs could lead to higher fees passed on to customers buying financial products (Kalu et al., 2018). Chaudhary and Abbas (2017) claimed that, according to FIT, a role of financial intermediaries is the ability to acquire low-cost information which could minimize transaction costs. Andrieş (2009) argued that one of the advantages of financial intermediaries is the ability to have a competitive advantage by providing competitive products to clients. Information asymmetry is the assumption that one party of a transaction could have more valuable information than the other party, which could give one party dominance over the outcome of the transaction (Diamond, 1984). Cuza assumed that the method of regulation might influence economic growth through government policies and supervision of financial intermediaries. Cuza claimed that many of the imperfections generated by informational asymmetry could lead to high transaction costs.

He et al. (2016) argued that understanding transaction cost could help decision-makers formulate more efficient strategies, which could improve the financial performance of financial institutions. He et al. claimed that managers of a financial organization should focus on minimizing transaction costs through the design of efficient governance mechanism for supporting economic transactions. He et al. postulated that uncertainties might enhance negative information asymmetry and could increase the potentiality of some intermediaries to behave opportunistically, which could increase the cost of transactions. Dauda and Lee (2016) argued that banking customers place more value on the transaction costs. Dauda and Lee claimed that financial institutions could strengthen competitiveness and improve performance through the focus on reduction of transaction costs and the transaction errors.

Information asymmetry in optimal time. Asymmetry information in optimal time is another tenet of FIT. According to Diamond (1984), information asymmetry might allow one party to dominate the result of a financial transaction as one party might have more information about the financial transaction than the other party. Many researchers have discussed asymmetry information and claimed that regulations might reduce asymmetry information, which could have a positive effect on the growth of financial intermediaries (Abdel-Razzaq, 2018; Allen & Santomero, 1998). According to FIT, financial institutions' managers should attempt to reduce information asymmetry, which could enable managers to avoid risky investments (Diamond, 1984; Ramakrishnan & Thakor, 1984). According to FIT, reducing transaction costs and asymmetry

information are some of the dominant explanations for the existence of financial intermediaries (Cuza, 2009). Additionally, Abdel-Razzaq (2018) argued that the existence of asymmetry information might increase transaction costs and reduce a firm's growth opportunity.

According to Abdel-Razzaq (2018), FIT focuses on the role of financial institutions in an environment where market participants should be asymmetrically informed as the existence of information asymmetry could increase transaction costs and might require regulators to demand new rules to reduce information asymmetry. He et al. (2016) postulated that uncertainties could increase information asymmetry and might make some intermediaries to behave opportunistically, which could increase the cost of transactions and decrease the level of profitability. Diamond (1984) argued that financial institutions could help to overcome informational asymmetry problems by acting as delegated monitors that provide clients with reduced-cost financial products. Molnar (2018) argued that managers of financial intermediaries could use firms' allocated resources to mitigate information asymmetry, which could reduce a borrower's cost. He et al. argued that a financial intermediary higher cost of loans is associated with a higher credit risk and information asymmetry. Faff, Gray, and Tan (2016) claimed that management of a financial intermediary might base a decision on a strategic financing project based on transaction costs, which could be driven by the level of information asymmetry and mandated regulations.

Eckstein (2015) claimed that the purpose of regulating financial markets is to increase transparency and decrease information asymmetry. However, Eckstein claimed that there is a positive correlation between information asymmetry and regulations' complexity and difficulties. Information asymmetry might likely increase when regulations' characteristics are complex and difficult to understand. Chen, Danbolt, and Holland (2014) claimed that financial intermediaries could help in decreasing information asymmetry by acting as delegated monitors between lenders and borrowers. Haron and Nomran (2016) claimed that information asymmetry might vary based on a firm's size. Haron and Nomran argued that managers in some organizations choose internal financing to external financing as managers know more information about the value of an organization than investors.

Method of regulations. A method of regulation is one of FIT's tenets, which can influence a financial intermediary's financial performance (Cuza, 2009). Diamond (1984) stated that the method of regulation could affect financial intermediaries' profits as regulations might increase compliance costs. Halbouni et al. (2016) claimed that compliance with financial regulations might increase the operating costs of financial intermediaries, which could reduce the firm's profit. Jiang, Aldewereld, Dignum, Wang, and Baida (2015) postulated that compliance with financial regulations could be costly and might increase the cost of a company's financial products. Halbouni et al. claimed that allocating companies' resources to comply with government regulations could reduce firms' growth opportunities as fewer of the firm's resources would be dedicated to

growing the firm's market share. Wall, Lowry, and Barlow (2016) argued that compliance with regulations could reduce regulatory violations, which would minimize the number of penalties a company must pay and might allow managers to pass on benefits to clients as a reduction in the transaction costs of financial products or services.

An approach of financial intermediaries that was based on the method of regulations was developed by Guttentag and Lindsay (1968), and Merton (1995). According to the regulation approach, the method of regulation could influence liquidity and solvability of financial intermediaries (Diamond, 1984). Method of regulations could influence a financial intermediary's financial performance (Cuza, 2009). Diamond (1984) stated that the method of regulation could affect financial intermediaries' profits as regulations might increase compliance costs. Halbouni et al. (2016) postulated that operating costs and transaction costs could be influenced by compliance with financial regulations.

In the United States, financial institutions must adhere to prescribed regulations imposed by the government. The intentions of most regulators when imposing new financial rules are to stabilize the financial market and improve consumers' confidence in the financial system (Adams & Gramlich, 2016). Post the 2008-financial crisis, government officials in the United States and abroad started to create new regulations on financial organizations to minimize or eliminate the effect of any future financial crises (Oliver, 2013). Wan-Ibrahim and Ismail (2015) described regulations as policies that are needed to ensure that financial institutions are in a stable state that could make

institutions resistant to economic shocks and suitable to fulfil basic functions. Regulating financial institutions could enhance the ability of intermediaries to face unexpected financial consequences (Wan-Ibrahim & Ismail, 2015). Wan-Ibrahim and Ismail argued that regulators would act as a body of an institution to control capital and assets' allocations in financial organizations. Oliver (2013) argued that, in many circumstances, imposing government regulations on financial institutions might help to minimize future negative implications in the financial market.

Independent Variables

Regulatory compliance cost. The federal financial institutions examination council (FFIEC) was established on March 10, 1979 (Federal Financial Institutions Examination Council [FFIEC], 2018). FFIEC consists of the federal deposit insurance corporation (FDIC), the office of the comptroller of the currency (OCC), the office of thrift supervision (OTS), the board of governors of the federal reserve system (FRB), and the NCUA (NCUA, 2018). FFIEC is empowered to prescribe uniform principles and standards and to make recommendations that encourage uniformity in the supervision of financial institutions (NCUA, 2017). According to Balseven (2016), regulations of financial organizations are methods governments impose, which direct financial institutions to certain requirements, restrictions, and guidelines. Balseven defined financial regulators as an establishment of institutions and rules concerning financial markets by public authority, with the purpose of pointing sources in the direction of certain objectives. Regulations are important to uphold the soundness and integrity of the

financial system and gain clients' confidence in the financial institutions (Balseven, 2016).

Vanni (2017) claimed that with the rising complexity of management of financial institutions, the need to protect customers' privacy, the need for stability, and credibility of financial institutions are some of the factors behind imposing government regulations. While Adams and Gramlich (2016) claimed that new financial regulations for some financial intermediaries might produce additional compliance costs. Cuza (2009) argued that regulations could have positive effects on clients' assessments of financial intermediaries, which might attract new customers and could reduce transaction costs. As Cuza discussed method of regulation as a principal of FIT, Diamond (1984) and Merton (1995) stated that regulating financial intermediaries could enhance financial positions of organizations, which might improve economies. Balseven (2016) stated that during and after the Great Recession, regulations concerning the financial system had become a focus of regulators in the United States. Adams and Gramlich (2016) discussed concerns of policy makers about the reduction in the number of new banks, which could be related to the increased regulatory burdens that were introduced in response to the 2008 financial crisis. However, according to FIT's assumptions, method of regulations might reduce information asymmetry, which could improve clients' confidence in financial institutions (Diamond, 1984). Most regulators are inclined to introduce new financial rules in response to a financial crisis as rules might decrease information asymmetry and increase

clients' confidence in financial intermediaries, which support FIT's assumptions regarding method of regulations and information asymmetry (Cuza, 2009).

According to Abdel-Razzaq (2018), a primary rationale for the existence of financial intermediaries is the superior ability of financial intermediaries to specialize in assessing the credit risk of potential borrowers. Most financial institutions' leaders have enough resources to help gather information about potential projects, which could reduce market imperfections, decrease costs, and improve profitability (Abdel-Razzaq, 2018). Werner (2016) argued that imposing capital requirements on financial institutions appeared to be a viable way to regulate financial organizations. Werner stated that the approach of regulating the money supply and require capital adequacy form financial intermediaries are based on the veracity of FIT, which have been supported by central banks. Werner claimed that higher capital requirements from financial firms could increase cost of capital and might not prevent subsequent financial crises.

Compliance with external rules. Jiang et al. (2015) stated that governmental regulations are measures and rules imposed by legal authorities to ensure social welfare and regulate business activities. Compliance with government regulations might increase the operating costs of organizations or reduce the allocated funds for other services or products (Halbouni et al., 2016). Cuza (2009) argued that compliance of financial intermediaries has a positive influence on economic growth. Jiang et al. (2015) explained that ensuring regulatory compliance could be costly and complex as advancements in technology and globalization could require firms' leaders to allocate more financial

resources to compliance. Halbouni et al. (2016) claimed that allocating companies' resources to comply with government regulations might weaken firms' growth opportunities, which could decrease the market value of firms. Wall et al. (2016) argued that compliance with regulations would decrease organizational rule violations, which would minimize the number of penalties a company must pay to authorities.

Kitching (2016) suggested that small firms might suffer financial losses from regulations imposed on businesses as the burden of new regulations might increase the labor cost associated with compliance. According to Cuza (2009), FIT's assumptions could explain the rationale behind the existence of financial intermediaries, and how regulations might affect regulatory compliance costs, which could require firms' managers to allocate more human resources to meet compliance requirements. He et al. (2016) sated that business managers understand that transaction costs and method of regulations could have an effect on a firm's profitability. Kitching stated that government regulations as employment regulations could increase a company's operating costs, which might reduce a firm's profitability. Jiang et al. and Kitching claimed that new regulations could require firms' leaders to assign additional human capital to comply with regulations, which could increase firms' payroll costs.

Diamond (1984) argued that FIT's tenet about the method of regulation, and the influence regulations might have on the financial performance of organizations could help in designing an effective regulatory framework that could improve firms' profitability. According to FIT, one objective of managers of financial intermediaries is

to minimize transaction costs, which includes reducing costs related to financial products as administrative costs and payroll costs (Chaudhary & Abbas, 2017). While Halbouni et al. (2016) stated that regulatory compliance could be costly to most financial intermediaries. Diamond and Rajan (2000) argued that methods of regulation could influence financial positions of most financial intermediaries and enhance firms' ability to overcome financial losses.

Compliance with internal systems. Even though internal control systems are not mandatory for corporations, having internal control is considered important to the operation of firms (Kitching, 2016). Mukhina (2017) mentioned that an internal control system in a corporation might enhance a corporation's efficiency and growth. A firm's efficiency in implementing an internal compliance system could improve firms' operations and reduce information asymmetry, which might increase a firm's market share and provide economies of scale (Chaudhary & Abbas, 2017). Andrieş (2009) claimed that the ability of financial intermediaries to provide competitive services to clients is a core function of financial intermediaries. Halbouni et al. (2016) concluded that corporate governance might enhance the value of a corporation and improve the working environment in companies, which could enhance a company's regulatory compliance. Mukhina claimed that the main goal of a firm's internal control system is to provide constant monitoring and assessment of the firm's activities and to make sure all transactions are conforming to applicable regulations.

According to Kitching (2016), regulatory burdens might impose limitations on companies' resources and reduce funds allocated for organizational growth, which might limit a company's financial ability. One of the main goals of compliance in a corporation is to provide a constant monitoring and assessment for compliance with applicable regulatory acts and internal regulations as compliance could improve a company's profitability and minimize noncompliance costs (Mukhina, 2017). Financial intermediaries are considered assigned monitors of financial transactions between investors and borrowers, which could help firms to provide necessary financial products to clients while minimizing investors' risk (Obafemi, 2012). According to FIT, information asymmetry and method of regulation are key principles in explaining the existence of financial intermediaries (Cuza, 2009). Cuza (2009) stated that based on FIT's tenets, financial intermediaries emerged to reduce costs of financial products. Reducing information asymmetry could allow banks' managers to have more information about clients, which could improve loans' quality, decrease transaction costs of financial products, and improve firms' profitability (Mukhina, 2017). Yusuf and Surjaatmadja (2018) explained that firms' managers could measure a firm's profitability generated within a certain period by the ROA's ratio.

Measuring regulatory compliance cost. Elliehausen (1998) defined cost of regulations as the cost of activities that are mandated by the law. According to Elliehausen, regulation costs for a financial institution could be estimated as a percentage of total noninterest expense. Regulatory costs have increased by 39% since 2010 as a

result of the 2008 financial crisis (Credit Union National Association [CUNA], 2016). Elliehausen stated that based on researchers' findings, regulation costs might be estimated as 13.70% of total noninterest expense. According to CUNA (2016), regulatory compliance costs for some credit unions could amount to 17% of operating costs. Noninterest expenses for credit unions are included in *Call Reports,* which can be accessed from the NCUA's website (https://www.ncua.gov). The noninterest expense account in the *Call Report* comprises of different expense accounts, which are identified by name and an account number (NCUA, 2017). I used the *Custom Query* available within *Call Reports* to retrieve the amount of noninterest expense for the selected credit unions.

Operation costs. According to Tuya (2017), the increased competition in the financial market increased operating costs of financial institutions, which could decrease firms' profitability. In financial institutions, managers and owners are concerned with operating costs as costs in most financial organizations are passed on to clients. Regulators of financial firms are also concerned about the operating costs of financial intermediaries as the more efficiently a financial company is operated, the larger earnings available to absorb possible losses (Davis & Martin, 1985). Eustache (2017) claimed that, for some financial intermediaries, compliance with rules could result in additional operating costs, which could increase transaction costs of financial services. According to Cuza (2009) and He et al. (2016), a transaction cost is one of FIT's tenets, and higher transaction costs might reduce firms' profitability, which motivate most firms' managers

to find ways to reduce transaction costs. According to FIT, financial intermediaries can have a competitive edge as most financial companies have enough resources that can help to minimize transaction costs and increase efficacy of operations, which can increase a firm's profit and improve the firm's growth opportunity (Chaudhary & Abbas, 2017). According to Işik and Belke, a firm's operating cost is a statistically significant variable that influences the firm's profitability.

Temelkov noted that operating costs for most financial firms are rising as challenges of regulatory compliance and technological innovations are evolving. Management's monitoring of a firm's operating costs as transaction costs could help managers formulate better decisions about the firm's financial strategies, which could improve organizations' financial performances (He et al., 2016). Technological advancements in financial markets have made implementations of new technologies and compliance an expensive process for most financial institutions (Temelkov, 2018). According to Lee and Isa (2017), market structure and operating costs have an effect on financial institutions' profit margins. Lee and Isa claimed that operating costs are considered determinants of a company's net income, and a financial institution that is operating at a higher cost-level must charge higher margins to maintain an acceptable level of profitability.

There are many factors that could affect the operating costs of a financial institution, and managers of financial organizations are vigilantly trying to control operating expenses to stabilize the profitability and improve firms' financial performance

(Tuya, 2017). Baral (2016) and Al-Shubiri and Jamil (2017) postulated that the profitability of financial institutions is influenced by allocation efficiency and operating costs. Al-Shubiri and Jamil argued that variables as operating costs affect the financial value of firms. Bondari (2017) and He et al. (2016) assumed that allocating costs to products accurately would enable financial organizations to make more accurate and beneficial decisions in a competitive environment, which could help financial firms' managers to become more efficient, thus reducing operating costs. Eustache (2017) argued that some financial intermediaries have cost advantages as efficiency of operations and the size of organizations could help lower costs of financial services, which could improve the growth of clients. Kalu et al. (2018) discussed FIT's tenets (high transaction costs, method of regulations, and information asymmetry) and the influence that tenets might have on the financial performance of a company. Kalu et al. concluded that transaction costs have an important role in determining the profitability of financial institutions.

Fixed cost. Fixed costs are considered expenses a business must pay regardless of any business activities (He et al., 2016). Varble and Young (2017) claimed that credit union managers are eager to see growth in membership base, which would allow management to spread fixed expenses as costs of technology and regulations across more individuals. Tuya (2017) claimed that, in the financial industry, developments of technology and globalization helped the industry to grow, which could increase the cost of operation. He et al. presumed that a company's operating costs could be justified when

transactions' volume is large enough, which could reduce transactions costs of financial services offered by an organization. According to FIT, a main role of financial intermediaries is to provide low-cost financial services to clients by allocating available resources and attracting new clients, which could minimize transaction costs (Chaudhary & Abbas, 2017). Cuza (2009) claimed that most limitations generated by informational asymmetry could lead to higher transaction costs and lower profits. The lack of compliance with regulations could be one of the limitations that might affect information asymmetry, which could lead to higher transaction costs (Samaha & Khlif, 2016). The limited interventions of government in financial markets might influence information asymmetry and transaction costs as governments could establish accounting standards that companies should follow, which could reduce information asymmetry (Samaha & Khlif, 2016).

Variable cost. In financial institutions, variable costs are dependent on many factors, which include the number of financial transactions produced by financial organizations (Tokle & Tocher, 2016). Competition between financial intermediaries is manifested on transaction costs and products differentiation (Cuza, 2009). Cuza (2009) argued that some financial intermediaries might give up short-term profit maximization objective to achieve long-term goals as increasing market share and reducing transaction costs, which could be attained by diversifying financial products. As variable costs might change based on the number of a firm's financial transactions, and reducing transaction costs is one of FIT's tenets, thus companies' managers should strive to diversify financial

services offered by financial intermediaries, which could increase a firm's market share and reduce transaction costs (Cuza, 2009; Tokle & Tocher, 2016). Rahman, Ashraf, Zheng, and Begum (2017) claimed that cost efficiency has a marginal positive effect on financial intermediaries, which allows institutions to maintain competitive transaction costs. Allen and Santomero (1998) postulated that FIT's assumptions could guide managers of financial intermediaries to focus on steps that could improve efficacy of operation and reduce organizations' operating cost.

Large financial intermediaries might have a competitive advantage as the size of organizations could help financial institutions' managers reduce costs of financial services, which could increase firms' profits (Eustache, 2017). Albert and Kung'u (2018) argued that in less populated areas, costs of financial services might be high as the demand of financial transactions in rural areas might be low, which might discourage other financial intermediaries from entering a specific market, thus increasing transactions costs. One study found significant relationships between sizes and financial performances of financial intermediaries and indicated that most large corporations could offer competitive prices to clients (Ibrahim, Ahmed, & Minai, 2018). As reducing transaction costs is an objective of financial intermediaries according to FIT's assumptions, and the number of financial transactions is a factor in reducing transaction costs, thus high clients' demand for financial products could reduce transaction costs and low demand for financial services in rural areas might increase costs (Albert & Kung'u, 2018; Allen & Santomero, 1998; Eustache, 2017).

Noninterest operating cost. Younus and Akhtaruzzaman (2017) argued that opportunity costs of noninterest-bearing assets and management efficiency are statistically significant and positively related to a financial institution's profit margin. Fredriksson, Maresch, and Moro (2017) stated that interest and noninterest products and services have an effect on the profitability of financial organizations. Improving a firm's profit could allow managers to offer competitive financial products to clients, therefore growing clients and reducing costs, which is, according to FIT, is one of the key roles of financial intermediaries (Chaudhary & Abbas, 2017). According to Andrieş (2009), the existence of financial intermediaries depends on organizations' ability to yield acceptable earnings to sustain current operations and support organizations' growth. Buyl, Boone, and Wade (2017) argued that financial intermediaries have engaged in traditional income transactions and noninterest income activities as noninterest transactions carry less risk than lending transactions. Buyl et al. (2017) claimed that poor corporate regulatory compliance by financial institutions' managers might increase costs of financial transactions and harm firms' growth.

Lee and Isa (2017) claimed that financial institutions could diversify sources of income by engaging in noninterest sources of revenues. One of the advantages of financial intermediaries is the ability to diversify products and services, thus attracting more clients and investors, which could reduce transactions costs and enhances growth opportunities (Andrieş, 2009). According to FIT's assumptions, financial intermediaries might have the ability to reduce transaction costs and information asymmetry, which

could allow organizations' managers to have efficient operations while minimizing operation costs (Allen & Santomero, 1998). According to Said (2018), diversified financial products might attract new clients and grow companies' operations, which could improve profitability while maintaining low transactions cost. One objective of most financial intermediaries' managers is to attain profitable operations by reducing operation costs. According to Yusuf and Surjaatmadja (2018), firms' managers could evaluate the profitability of organizations and how efficiently managers are controlling operation costs by using the ROA measurement.

Measuring operation costs. Operation expenses for financial institutions are usually recorded and classified by category and numerical values on firms' financial reports. Operation expenses for credit unions are detailed on *Call Reports* obtained from the NCUA's website. I retrieved values of operation costs for credit unions selected for this study from *Call Reports* at NCUA's website (https://www.ncua.gov). I used the *Custom Query* tool available at the NCUA's website to obtain necessary data about operation costs of credit unions specific to this study. Ammar (2017) stated that reducing operation costs in a financial institution might benefit clients by offering competitive financial products and benefit the financial institution by gaining competitive advantage. Hossain (2015) claimed that high operation costs in a credit union could be at the expense of members, and the credit union's managers should attain operational efficacy, which might reduce operation costs.

Dependent Variable

Profitability. Yusuf and Surjaatmadja (2018) stated that profitability is the ability of a company to generate profit within a certain period. Yusuf and Surjaatmadja claimed that return on assets (ROA) is used to measure the effectiveness of organizations in generating a profit by utilizing the assets owned. Investors are usually attracted to highly profitable companies as a high profitability is associated with a high rate of return (Yusuf & Surjaatmadja, 2018). Reddy and Babu (2018) claimed that the level of competition between organizations in certain markets might affect the operation cost and the profitability of firms. Yusuf and Surjaatmadja and Zogning (2017) postulated that investors and banks are interested in the financial health of companies as investors and banks might be stakeholders. Zogning argued that in a market-based system, the profitability of financial institutions depends less on loan-interest as financial companies earn a significant part of their income through services generated outside financial intermediation.

Said (2018) stated that assets' quality of financial institutions is considered a significant factor in determining the overall financial healthiness of organizations. Said argued that nonperforming loans would have a negative effect on the profitability of financial firms as the 2008 financial crisis was an example of how lower-quality assets might have affected the financial health of organizations. Zheng, Sarker, and Nahar (2018) stated that return on equity (ROE) is a measure of profitability, which is calculated by net income divided by shareholders' equity and expressed as a percentage.

Yusuf and Surjaatmadja (2018) and Said claimed that shareholders could assess the profitability of financial companies by using the ROA measurement, while Said further argued that shareholders might also use ROE measurement to evaluate the profitability of financial firms. Zheng et al. (2018) claimed that the profitability of financial companies is affected by the credit risk of financial firms. Reddy and Babu (2018) and Zheng et al. argued that the concentration of financial companies is positively associated with the level of competition, and negatively associated with firms' profitability.

Domanović, Todorović, and Savović (2018) argued that there are internal and external factors that could affect the profitability of financial institutions. Domanović et al. (2018) argued that complex regulations and the high costs associated with financial regulations are some of the external factors that could affect profitability. Witman (2018) claimed that incentives financial institutions pay to employees for selling financial products are some of the costs that could decrease firms' profitability. Domanović et al. and Witman claimed that the profitability of financial organizations could be influenced by management's policies and the structure of the assets and liability of organizations. Domanović et al. argued that large financial organizations are more likely to increase profitability than small organizations as large firms can realize economies of scale, which allow large institutions to allocate fixed costs to a broader assets' base, therefore reducing average fixed costs. Pistoresi and Venturelli (2015) claimed that according to FIT, financial intermediaries could adopt screening procedures and control measures that could improve management efficiency and reduce risky investments. Domanović et al.

and Witman claimed that diversifying products and services offered by financial intermediaries could lead to clients' growth as different financial services could attract more clients, which could contribute to improving profitability and reducing costs of transactions.

According to Joo et al. (2017), government regulatory compliance for financial institutions, and the increase in operation and regulatory compliance costs affect profitability of financial intermediaries. The ability of financial institutions to improve profits is associated with other factors that affect firms' financial performances as operation costs and regulatory costs (Joo et al., 2017). Reducing transaction costs of financial services and asymmetry information are some of the main reasons for the existence of financial intermediaries (Cuza, 2009). According to Chaudhary and Abbas (2017), financial intermediaries could provide financial benefits to investors by achieving acceptable ROE, which is attainable by reducing costs of financial products and enhancing companies' growth. According to FIT, the existence of financial intermediaries is considered beneficial to economies as clients and investors could benefit from competitive financial services and steady return on investments (Chaudhary & Abbas, 2017). Mgboji (2019) used FIT to discuss financial intermediaries' roles and how financial institutions generate a profit by accepting deposits and lending funds out to customers.

Measuring profitability. Financial statements present a picture of an organization's financial standing by tracking revenues and expenses. Total revenues and

minus total expenses will equal profitability as represented on a company's income statements (NCUA, 2017). Financial ratios are used to measure businesses' performances in terms of liquidity, debt, and profitability (Oberholzer & Barnard, 2015). Klaassen and van Eeghen (2014) defined ROA as a profitability ratio that could measure income generated by all assets**.** According to Oberholzer and Barnard (2015), ROA was found to be the most frequently used accounting-based performance to measure firms' profitability. ROA for a credit union has a numerical value and included in *Call Reports* retrieved from NCUA's website (https://www.ncua.gov).

Alternative Theories

Signaling theory. Samaha and Khlif (2016) stated that signaling theory was developed by Spence in 1973 to explain market behaviors. Samaha and Khlif argued that management could use signaling theory to show how information asymmetry can be reduced by signaling more information to others. Rezaee, Zhang, Dou, and Gao (2018) argued that management might use the concept of the signaling theory to explain management's incentives for disclosing information to reduce information asymmetry. Rezaee et al. (2018) postulated that some organizations could attempt to signal positive information about the corporate governance of an organization to attract investors, which might improve the financial performance of organizations. Zerbini (2017) argued that revealing information about a financial institution's services might reduce information asymmetry, which could reduce the regulatory requirements on specific services as buyers could have enough information about the offered financial services.

Zerbini (2017) explained that signaling theory might have the same assumption about information asymmetry as information asymmetry might influence the financial performance of some financial institutions. Zerbini also claimed that according to the signaling theory, some products might result in higher upfront costs that outweigh the expected return as the cost of promoting certain financial products might exceed potential profits. Samaha and Khlif (2016) postulated that managers could disclose financial information, which signals to markets expectations and intentions of organizations. Firms' compliance might signal to investors that an organization is prepared to adopt new strategies or use a more restrictive internal control (Samaha & Khlif, 2016; Zerbini, 2017). Groening and Kanuri (2018) argued that managers might use the signaling theory to help investors identify better-investing opportunities, which could improve the profitability of some firms. Groening and Kanuri also claimed that according to the agency theory, an agent is more involved in the company than a principal, which could create information asymmetry that could increase costs to principals or inspire new regulatory requirements.

Agency theory. Agency theory was introduced by Berle and Means (1932), and according to the agency theory, the separation of ownership from operational control in organizations could result in a principal-agent relationship, where managers are agents and owners are the principal. Li (2018) stated that the agency theory has two principles (a) conflict of interest between principal and agent and (b) information asymmetry between the agent and the principal. According to Li, a principal of a financial institution

might offer managers bonuses to improve profitability, which would require managers to reduce the firm's operations cost. On the other hand, Darayseh and Chazi (2018) argued that managers of financial organizations might not act in the best interest of the principal as firms' agents might not increase firms' risk, which could increase a company's profit. Darayseh and Chazi claimed that the complication of the principal-agent relationship could increase the conflict and information asymmetry between agents and the principal, which might lead the principal to increase monitoring of agents and firms' operations. Darayseh and Chazi and Hussain, Rigoni, and Orij (2018) postulated that the conflicting relationship between managers and principal in a company might motivate the principal to closely monitor managers, which might increase firms' operation costs and reduce profitability.

Hussain et al. (2018) argued that effective internal monitoring in a company might reduce the agency problem and holds agents accountable, which could improve profitability, while Cuza (2009) argued that the rise of evaluation and monitoring of firms' operations could increase firms' transaction costs and reduce earnings. Darayseh and Chazi (2018) and Eckstein (2015) argued that there is a positive relationship between conflict of interest between agents and principal and information asymmetry. Eckstein argued that there is a positive relationship between information asymmetry and government regulations, which might increase the regulatory compliance cost and the operation cost.

Stewardship theory. Yusuf and Surjaatmadja (2018) stated that Donaldson and Davis (1991) coined stewardship theory based on the philosophical assumptions about human nature that managers are trustworthy, and a manager in a firm would override personal interests to achieve organizational goals. Yusuf and Surjaatmadja claimed that according to the stewardship theory, management could act with full responsibility toward achieving organizational goals, and internal monitoring of operations to make sure management follows companies' procedures to achieve firms' goals is not necessary. Maxfield, Wang, and Magaldi De Sousa (2018) argued that managers' compensation is one of the most important principles in corporate governance that might align managerial decisions with the interest of firms' principal. Hussain et al. (2018) argued that increased monitoring of management could raise the cost of transactions in a financial institution, which could reduce firms' profitability.

Re and Giachino (2018) claimed that according to stewardship theory, positive relationship between managers and the principal could evolve, which could reduce information asymmetry, therefore compliance costs and monitoring costs might decrease. Financial performance of organizations relies on the corporate governance of firms (Tshipa, Brümmer, Wolmarans, & Du-Toit, 2018). There is a positive relationship between internal corporate governance and the financial performance of a company (Tshipa et al., 2018). García-Meca, López-Iturriaga, and Tejerina-Gaite (2017) argued that according to the stewardship theory, managers are empowered as owners are not closely monitoring operations, which could increase financial risk. García-Meca et al.

(2017) argued that the participation of firms' principal in the operations of firms might help to formulate and implement strategies that could reduce information asymmetry and facilitate coordination among stakeholders. Ahmed and Manab (2016) argued that financial institutions' principal should design strategies to help guide operational managers to avoid taking potentially unprofitable risks, which could harm companies' financial performance.

Credit Unions

Credit unions are depository institutions created to serve members as credit cooperatives (NCUA, 2018). The earliest financial cooperatives were formed at the beginning of the 19th century in England (NCUA, 2018). A few decades after the initial formation in England, credit unions were introduced in Germany (NCUA, 2018). The credit unions that were established in the 19th century in England and Germany and were organized by Schulze-Delitzsch and Raiffeisen became the model for credit unions in the United States (NCUA, 2018). In 1934, President Roosevelt signed the federal credit union act into law, creating a national system to charter and to supervise federal credit unions (NCUA, 2018). In 1970, NCUA became an independent federal agency (NCUA, 2018). In the 1970s, the United States Congress created the national credit union share insurance fund (NCUSIF) to protect deposits at credit unions (NCUA, 2018).

In the 1990s, credit unions in the United States continued to expand as a group as the deregulation by the U.S. government provided more flexibility in the merger of some financial institutions (NCUA, 2018). The financial performance of some credit unions

was affected by the 2008 financial crisis as many large credit unions in the United States invested in troubled mortgage-backed securities that experienced unprecedented declines in value (My Credit Union [MCU], 2018; NCUA, 2018). Most credit unions offer higher saving rates and lower loan rates to members (MCU, 2018). Like banks, credit unions accept deposits and make loans, but contrary to banks, credit unions mission is to service credit unions' members by providing participants with low-cost loans and financial services (MCU, 2018). Emmons and Schmid (1999) stated that one distinguishing feature of credit unions is the legal requirement that members share a common bond. Credit unions with multiple common bonds have higher participation rates than credit unions with a single common bond (Emmons & Schmid, 1999). Hassan, Brodmann, Rayfield, and Huda (2018) claimed that a unique characteristic of credit unions is the inability of credit unions to sell off loans to other investors after inceptions as the issuing credit union must hold any loan until a full repayment or default.

Emmons and Schmid (1999) and NCUA (2018) argued that credit unions' members enjoy equal control rights and share a common bond of occupation or association. Emmons and Schmid and McKillop and Wilson (2015) claimed that credit unions could not do business with the general public as the limitations associated with the membership's characteristics. McKillop and Wilson claimed that credit unions provide financial services to individuals who are excluded by mainstream financial institutions as some traditional financial organizations might deem some clients to be too risky. Hassan et al. (2018) stated that credit unions are exempt from federal and most state taxes

through the passing of credit union membership access act of 1988 (CUMAA), which made credit unions nonprofit organizations. Credit unions under the supervision of NCUA are considered tax-exempt under section 501(c)(1) of the internal revenue code and are not required to file an annual information return (Internal Revenue Service [IRS], 2018). Hilton (1996) argued that credit unions are nonprofit organization as credit unions are owned by members, and the primary purpose of management of credit unions is to promote the economy by providing cost-efficient financial products to members, while retained profits are reinvested to achieve credit unions' objectives. Nonprofits typically have a national or state charter to provide members with financial and legal protection separate from the legal entity of the organization (NCUA, 2018). Nonprofit firms are considered as official bodies with a charter and governing board of representatives. Most often, not-for-profits are non-chartered organizations, and the purpose of operation might be just a hobby. Nonprofits normally qualify for tax-exempt status in the United States (NCUA, 2018). McKillop and Wilson stated that as credit unions in the United States are nonprofit organizations, therefore satisfying shareholders' profit expectations is not required. Martínez-Campillo, Fernández-Santos, and María-del (2018) argued that credit unions are obliged to maximize value not to shareholders, but for cooperative members, which could have a positive social impact on the members' communities. Martínez-Campillo et al. (2018) argued that credit unions' management must be efficient and competitive as possible to survive business environment at times of financial crises. Ely (2014) and Martínez-Campillo et al. and Pavlovskaya and Eletto (2018) claimed that the

economic interests of credit unions are bound to communities instead of the global market as credit unions' roots in specific communities united by residence, work, or geography.

Federally chartered credit unions. Ely (2014) stated that the passage of the CUMAA by the U.S. Congress allowed federally-chartered credit unions to expand beyond one membership group. Frame, Karels, and McClatchey (2002) argued that a single-bond credit union exists where a credit union's management limits membership to groups that share one bond as occupation or geographic area. According to Frame et al. (2002), members in multiple-bond credit unions can join as different groups, where each group has a specific bond in common. Ely claimed that the expansion of credit unions beyond one membership group would allow employees to continue to have access to credit unions' services following the loss or downsizing of some credit unions' sponsors. Malikov, Restrepo-Tobon, and Kumbhakar (2018) argued that credit unions with broader field-membership could offer a various range of services to members, which could create demand to a more diverse list of financial services. On the other hand, Ely argued that broader field-membership credit unions might operate with greater risks than single-bond credit unions. Malikov et al. (2018) stated that multiple-bond credit unions might have a substantial advantage over single-bond as broader credit unions are larger, which makes the diversity of credit risks easier. Pavlovskaya and Eletto (2018) postulated that some credit unions are struggling as of limited assets, which requires some credit unions to consolidate to achieve economies of scale.

Single-bond credit unions. Frame et al. (2002) claimed that before 1982, memberships in federal credit unions were limited to groups having a common bond of occupation, association, or geographical area. Frame et al. stated that occupational credit unions serve individuals sharing a common employer or workplace, and associational credit unions serve members of a religious congregation or a civic group. van Rijn (2018) argued that single-bond credit unions might have higher risk and lower returns than multiple-bond credit unions as a larger and a more diversified field of memberships could decrease risk. In 1982, credit unions were allowed to add common bonds to multiple groups (Frame et al., 2002).

Multiple-bond credit unions. According to Frame et al. (2002), the multiple-bond regulatory by the NCUA was a normal response to the weak financial performance of many credit unions. The interpretation of credit unions multiple-bond groups by NCUA have allowed certain types of credit unions to add multiple groups, which have permitted many credit unions to diversify memberships and expand operations (Frame et al., 2002). Malikov et al. (2018) claimed that the diversification of credit unions membership has allowed credit unions to grow significantly to compensate for the loss of the traditional competitive advantage as economies of scale. According to Andrieş (2009), one of the advantages of financial intermediaries is the ability to have a competitive edge by providing competitive products to clients. Malikov et al. stated that a multiple-bond credit union might have a better growth rate than a single-bond credit union as mixed financial services offered by multiple-bond credit unions could attract

more members and reduce risk. The use of the FIT in this study could help credit unions' managers to understand the relationship between regulatory compliance cost, operation cost, and profitability of credit unions.

Financial Performance

Toews (2015) stated that financial institutions as credit unions serve as financial intermediaries between savers and borrowers. Toews claimed that one objective of credit unions' management is to provide the best rates possible to borrowers and savers, while earning sufficient net profit to sustain efficient operations and stay competitive. Ibrahim et al. (2018) argued that the easiest way for a financial institution to achieve better financial performance is to charge high-interest rates on loans. Dey, Hossain, and Rezaee (2018) and Ibrahim et al. claimed that some studies found an association between a firm's size and financial performance. Dey et al. (2018) also argued that risk disclosure provides greater transparency, which might increase stakeholders' confidence in a firm and improve the firm's financial performance.

Yusuf and Surjaatmadja (2018) stated that organizations' financial performance could be measured as ROA or ROE. Yusuf and Surjaatmadja argued that firms' profitability might be used to measure managers' effectiveness in utilizing companies' assets. Kalu et al. (2018) argued that investors prefer to lend money to financial intermediaries as financial institutions are more effective in generating earnings than investors. Chaudhary and Abbas (2017) stated that according to FIT, financial intermediaries could help to maximize investors' ROA and ROE. Financial

intermediaries might be more effective in generating earnings than individual investors as financial intermediaries could overcome informational asymmetry issues, which might minimize transaction costs and improve profitability. Abdel-Razzaq (2018) claimed that one focus of FIT is financial institutions' role in providing low-risk investments and financial performances by specializing in reducing information asymmetry and attaining economies of scale.

Cuza (2009) argued that the role of financial intermediaries in economies could be explained by FIT. Chaudhary and Abbas (2017) claimed that researchers might use FIT as guidance to explain the importance of FIT's tenets in maximizing profit by reducing costs and information asymmetry. Most successful financial intermediaries have a competitive advantage, which helps organizations generate high earnings (Andrieş, 2009). Adams and Gramlich (2016) claimed that government regulations have a cost burden on most financial firms, which might decrease organizations' profit and reduce a firm's ROA. Diamond (1984) stated that government regulations could affect the profitability of financial institutions.

According to Tuya (2017), the increased operating costs of financial institutions might encourage firms' management to develop plans that could maintain or improve the financial performance of organizations. Tuya argued that firms' managers are alarmed with rising operating costs as high operating costs, if passed to clients, might harm firms' growth and profitability. Al-Shubiri and Jamil (2017) and Wei (2016) claimed that operating costs affect the profitability of financial institutions, and managed-operating

costs could help financial organizations to remain competitive. Most financial institutions are subject to regulatory requirements as regulatory compliance could help organizations' stability and growth (Vanni, 2017).

Compliance requirements. Government regulations of financial institutions could help clarify the way a firm conducts business with other companies and clients (Admati, 2017). According to Admati (2017), compliance with government regulations is costly, and most firms' managers would be motivated to manage compliance cost as the financial performance and managerial compensations typically rely on a firm's financial performance, which could be measured by ROA and ROE. Abdullah, Indulska, and Sadiq (2016) claimed that compliance requirements are typically associated with regulations that might be introduced by a legislature or regulatory bodies. Abdullah et al. (2016) stated that obligations to meet regulatory compliance are viewed as a burden by most financial institutions and failing to comply with regulations is no longer an option as organizations might face disastrous consequences for not complying with required regulations. Several frameworks have emerged to provide guidelines to firms' managers on how to efficiently meet regulatory compliance as compliance costs could influence the profitability of financial institutions. Logan (2016) stated that from a societal viewpoint, the stability of financial institutions is deemed more important than profitability, as most financial firms exist to generate sustainable profits, therefore, a regulatory framework should be incorporated into any derived profit model.

Chiu (2017) stated that as economic activities have become increasingly global, and financial firms are mandated to comply with multinational regulations, compliance costs have become a concern to firms' management. McKee and Kagan (2016) claimed that a financial institution's management has to operate in a manner that reduces operating costs to counterbalance increases in compliance costs. McKee and Kagan postulated that even though new regulations for financial institutions might help to provide a stable financial market, complying with the new regulations could impose sizable costs that might harm a firm's financial performance. According to Cyree (2016), regulatory compliance and legislative pressures are some of the largest barriers to the growth of most small financial organizations as costs of regulatory compliance reduce funds available for investments. After the passage of the U.S. Patriot Act, there was an increase in the number of employees hired by small financial companies (Cyree, 2016). After the passage of Dodd-Frank Act in 2010, there were financial indicators that supported (a) an increased regulatory burden, (b) lower pretax ROA, (c) lower loans per employee, and (d) higher percentage change in employees' salaries (Cyree, 2016). Cyree argued that when new regulations are burdensome on firms, a firm has to hire additional employees to maintain the same productivity or the firm's production level would fall, which could affect companies' profitability.

Efficacy of operation. Mahendru and Bhatia (2017) argued that a financial institution's efficiency is associated with how well a firm control costs while operating at a required- production level. Cost efficiency might echo organizations' financial

performances, where managers are controlling operation costs at the lowest while attaining the required productivity (Baral, 2016; Mahendru & Bhatia, 2017). Baral (2016) argued that the profitability of a company is influenced by the effectiveness of allocating firms' resources and the control of a company's operating costs. Managing operation costs in a firm would improve the firm's profitability, which could help financial institutions in providing competitive products and services (Bondari, 2017). Işik and Belke (2017) claimed that less efficient financial institutions with high operating costs are more likely to apply an extra interest margin to counterbalance some operating costs, which should improve a firm's profit margin. Temelkov (2018) claimed that changes in the way financial institutions conduct business are growing along with new costly challenges for most financial institutions.

Lee and Isa (2017) noted that a firm's efficiency could be measured by the ratio of operating costs to gross income or the amount of expenditures incurred to generate one unit of gross income. Financial institutions with high operational efficiency might pass on benefits to customers in the form of lower transaction costs, which could enhance organizations' growth and financial performances (Lee & Isa, 2017). Joo et al. (2017) argued that limited profitability of a financial institution which might be triggered by costly regulations or high operation costs might severely limit a financial intermediary's growth and prevent the financial intermediary from competing with other firms.

Profitability of investments. Said (2018) described profitability as the lifeline of any financial institution to continue operations and to establish a sound financial system.

Financial intermediaries' profitability is a measure of the effectiveness and efficiency of firms (Yusuf & Surjaatmadja, 2018). According to Yusuf and Surjaatmadja (2018), the profitability of financial institutions could be measured by ROA or ROE. Reddy and Babu (2018) and Tuya (2017) claimed that the profitability of financial intermediaries is influenced by the level of competition in a financial market and operating costs. Zogning (2017) postulated that investors are interested in firms' profitability as returns on investments and a firm's growth are influenced by the firm's earnings. Abosede, Fayose, and Eze (2018) stated that investors could evaluate firms' performances based on nonfinancial measures as products' quality, customer service, and employees' satisfaction or financial measures as profit, ROA, or ROE.

Abosede et al. (2018) argued that companies' financial performances and efficiencies are valuable assets that could lead to firms' competitive advantages and economies of scale, which might lower a firm's transaction costs and improve profitability. Said (2018) claimed that nonperforming assets would have a negative effect on a financial institution's profitability, which could harm a firm's returns on investment and cause instability in a financial market as the 2008 financial crisis. According to Said, there is a positive correlation between a firm's loans quality, size, and profitability. Zheng et al. (2018) claimed that a firm's credit risk might affect the firm's profitability and quality of assets. Zheng et al. stated that government regulations have an effect on a firm's profitability as regulations could decrease information asymmetry, which might improve the firm's growth as clients' confidence in the firm's financial products and

services is increased. Zheng et al. argued that the profitability of firms is negatively associated with firms' concentration in certain markets, and regulatory requirements have an effect on firms' financial performances.

Chaudhary and Abbas (2017) and Andrieş (2009) stated that, based on FIT, one role of financial intermediaries is to generate adequate profit to maintain and grow operations by providing competitive financial products and services. Joo et al. (2017) claimed that a financial institution's efficiency and profitability could enhance managers' abilities to comply with all required regulations, which could minimize a firm's risk and make the firm more resistant against sudden changes in a financial market. He et al. (2016) argued that most managers in financial institutions are constantly trying to reduce firms' variable costs as lowering variable costs would improve profitability and help decrease transactions' costs for clients, which could help firms' growth. Lee and Isa (2017) claimed that most financial firms would offer different financial products and services as noninterest products to diversify sources of income, which might improve firms' profitability.

According to Abdel-Razzaq (2018), profitability determinants are divided into two categories, internal determinants and external determinants. Necessary expenses for firms' operations which are controlled by management are considered internal determinants of profitability (Abdel-Razzaq, 2018). Economic conditions as new regulations could be considered external determinants of profitability (Abdel-Razzaq, 2018). The presence of asymmetric information increases transaction costs, which

requires the existence of an institution that specializes in assessing a market risk and improve the allocation of a firm's resources (Abdel-Razzaq, 2018). Nega (2017) noted that the growth of a firm's profitability is a useful indicator for the firm's managers and investors to see how well managers in the firm can convert investable resources into profits. Nega argued that while a firm's managers might increase profitability by borrowing funds, debts' costs could become too high that ROA's ratio might decline.

Transition

Section 1 of this study includes the problem statement, purpose statement, nature of the study, research question, theoretical framework, and the significance of the study. The regulatory compliance costs and operation costs have an influence on the profitability of credit unions (Joo et al., 2017). A review of the literature included analyzing previous academic research, which provided information about regulatory compliance costs, operation costs, and profitability of financial institutions. In section 2, I identified and discussed (a) the role of the researcher, (b) participants, (c) research method, (d) research design, (e) population and sampling, (f) ethical research, (g) instrumentation, (h) data collection technique, (i) data analysis, and (j)study validity. In section 3, I provided the results of the study, which included discussions of the findings, implications for social change, and recommendations for future research.

Section 2: The Project

Purpose Statement

My purpose in this quantitative correlational study was to examine the relationship between regulatory compliance cost, operation cost, and profitability of credit unions. The independent variables were regulatory compliance cost and operating cost and the dependent variable was profitability. The target population consisted of federally insured credit unions in the state of Texas. The implications for positive social change include that some credit union managers might improve decision-making processes related to current and future operations and investments, which could increase profitability and contribute to the financial prosperity of employees, employees' families, communities, and local economies.

Role of the Researcher

Fusch and Ness (2015) stated that the role of a researcher includes data collection, storage, and data analysis. Fusch and Ness argued that the role of a researcher should demonstrate the richness of information gleaned from data, which would assert that relevant data collection methods were used, and the researcher has the best opportunity to answer the research question. The role of the researcher in a quantitative study is to act objectively as an independent assessor who collects, analyzes, and interprets data to answer the research question (Moon, 2015). Robust data collection processes could provide researchers with objectivity and generalizability, which asserts the accuracy of researchers' findings and interpretations (Caruth, 2013; Moon, 2015). Before data can be

analyzed, the researcher needs to define which data sets to look at, how to access data sets, and which tools to use to analyze data (Moon, 2015). When conducting regression analysis, the researcher should have a full understanding of tools used in the analysis process as the researcher's actions and decisions during a research are crucial to findings Huang, Ozdenerol, & Sunderman, 2019; Moon, 2015). I relied on available archived governmental financial reports from the NCUA's website without interacting with human participants. Quantitative researchers may rely on the development of empirical measurement instruments and procedures to collect data and presume analytical conclusions (Caruth, 2013; Temtime, 2016; Wisdom, Cavaleri, Onwuegbuzie, & Green, 2012).

My relationship with the topic has evolved as my search of the phenomenon began to narrow along with positive feedback from colleagues. I began to access online archived data from the NCUA's website, which bound my relationship with the topic, because I noticed a pattern of decline in the number of credit unions with less than $10 million in assets. Other than being a member of a credit union as an account holder, I have no other relationship with a credit union.

The *Belmont Report* was written in 1978 by the National Commission for Protection of Human Services of Biomedical and Behavioral Research (U.S. Department of Health & Human Services [DHHS], 2016). Sims (2010) claimed that the purpose of the *Belmont Report* is to protect subjects and participants in research studies. *Belmont Report* has three principles, which are (a) beneficence, (b) justice, and (c) respect for

persons. Campbell and Morris (2017) noted beneficence refers that researchers should not do harm to participants while conducting research. Researchers should make the utmost efforts to maximize benefits and minimize risks during research and after completion of studies (Campbell & Morris, 2017; Sims, 2010). The authors at DHHS (2016) stated that justice refers to efforts' researchers make to describe risks and benefits equally, and to disseminate any research findings. DHHS noted respect refers to assurances that people are free to decide either to participate or not to participate in a research. According to DHHS, respect for persons includes two ethical convictions, individuals should be treated as autonomous agents and persons with diminished autonomy are entitled to protection.

Participants

For this study, I used publicly available archived data obtained from the NCUA's website (https://www.ncua.gov). According to Cornelissen (2016), using secondary data analysis helps the generalizability of the study and reduces ethical risks. Behringer, Omohundro, Boswell, Evans, and Ferranti (2014) claimed that the use of secondary data is efficient and appropriate for analysis and conclusions. This study was limited to federally insured credit unions with less than $10 million in assets and located in the state of Texas. As data from databases of the NCUA was publicly available, gaining access to data for this study did not require permission to use.

Financial data reports as *Call Reports* and *Financial Trends in Federally Insured Credit Unions* from NCUA are subject to audit and validation requirements to ensure data reliability (NCUA, 2017). Morse, Barrett, Mayan, Olson, and Spiers (2002) claimed

that statistical software could improve the validity and generalizability of quantitative studies. I did not have human participants in this study. I retrieved secondary data, and I followed appropriate procedures during data retrieval process to ensure that my relationship with the study produces reliable and dependable findings. Glogowska (2011) stated that in quantitative research, researchers should maintain objectivity during the research process to obtain validity and generalizable results.

I retrieved data from credit unions with less than $10 million in assets for the period from 2010 to 2015. Chakravarty and Grewal (2016) used data during the period of 2001 to 2009 to conduct a quantitative study to examine the significance between variables. Leventis, Dimitropoulos, and Owusu-Ansah (2013) conducted a quantitative correlational study to examine the relationship between the corporate governance and the performance of commercial banks in the United States during the period of 2003 to 2009. Some of the reports that I used to obtain data from NCUA's website included *Summary of Trends by Assets Group,* and *Credit Union Call Report Data*. van Dalsem (2017) used data from credit unions' C*all Report* from NCUA's website to conduct a study on credit unions in the United States. Christopoulos and Gonzalez (2017) used secondary data to conduct a study about credit unions. Additionally, van Rijn (2018) accessed NCUA's website and used the *Call Report* database to get financial information about credit unions for the period from 2010 to 2015. The available resources at the NCUA's website provided me with sufficient data, which assisted me in finding if there was a linear

relationship between regulatory compliance cost, operation cost, and profitability of credit unions.

Research Method

I used the quantitative method for this study. The quantitative method was appropriate. I tested relationships between independent variables (regulatory compliance cost and operation cost) and the dependent variable (profitability). Researchers use quantitative methods to measure variables and statistically analyze numerical data (Gravetter & Forzano, 2015). The validity of statistical conclusion is related to findings of quantitative studies, which refers to appropriate use (reliability and validity of measures) of numerical data to conclude if a relationship exists between independent and dependent variables (Venkatesh, Brown, & Bala, 2013). Landrum and Garza (2015) stated that researchers use quantitative methods to examine the extent of relationships between variables by measuring numerical data to verify relationships between variables.

Qualitative researchers focus on collecting and analyzing qualitative data, which is obtained through interviews, participant observations, and analysis of written documents (Diemer, 2016). Southam-Gerow and Dorsey (2014) stated that qualitative data are typically collected using individual interviews, focus groups, and observations involving field notes. Qualitative researchers explore a phenomenon by capturing personal insights of individuals (Isaacs, 2014). Qualitative researchers describe common experiences about a problem to gain an understanding of the problem and use nonnumerical data to explore a phenomenon (Madill, 2015; Yin, 2014). Because I did not

explore human behaviors in this study, qualitative method would not help me address the research question

The mixed methods approach involves a combination of quantitative and qualitative methodologies in the same study (Yilmaz, 2013). According to Johnson (2015), mixed method is used where researchers collect and analyze data, integrate the findings, and draw inferences using qualitative and quantitative methods. The mixed method was inappropriate for this study as I only needed the quantitative method to analyze numerical data and explain results of this study.

Research Design

A correlational design was the most appropriate to examine relationships between variables and answer this study's research question. Quantitative researchers measure variables and test hypotheses to determine the significance of relationships between independent and dependent variables (Curtis, Comisky, & Dempsey, 2016). The correlational design involves using variables from a specified population with no manipulation of variables (Rucker, McShane, & Preacher, 2015). Alves, Couto, and Francisco (2016) conducted research using correlational design to examine the relationship between independent variables (ROE and total shareholder return) and the dependent variable (total chief executive officer compensation).

The traditional experimental design was not appropriate for this study as the experimental design often involves the manipulation of variables to understand how one variable affects other variables (Rucker et al., 2015). Researchers conduct traditional

experimental design to find the ideal values of variables that support a significance cause-effect relationship, rather than finding the relationship between variables (Callao, 2014). The traditional experimental designs result in a systemic approach to quantitative data collection involving mathematical models in the analyses (Williams, 2007). Experimental research is often used where there is time priority in a causal relationship (cause precedes effect), there is consistency in a causal relationship (a cause will always lead to the same effect), and the magnitude of the correlation is great (Einhorn & Hogarth, 1986). The classic experimental design specifies an experimental group and a control group (Kenny, 1975). The independent variable is administered to the experimental group and not to the control group, and both groups are measured on the same dependent variable (Kenny, 1975). Subsequent experimental designs have used more groups and more measurements over longer periods (Tehrani, 2016; Yilmaz, 2013). True experiments must have control, randomization, and manipulation (Yilmaz, 2013).

The causal-comparative design is usually used to test causal relationships (Cook, 2015). Researchers use causal-comparative designs in studies where a comparison of variables between groups is involved (Boyko, 2013). Schenker and Rumrill (2004) stated that researchers use causal-comparative studies to examine the magnitude of differences between or among groups, and generally, the independent variables used in causal-comparative designs consist of demographic or status characteristics as gender, race, or educational level. Using causal-comparative design was not optimal to address the research question. The focus of this study was to examine the relationship between

independent and dependent variables without manipulating variables or determining the significance of a cause-effect relationship.

Population and Sampling

Population

The population of this study was archival data from federally insured credit unions in the state of Texas with less than $10 million in assets. The archival data for this correlational study was collected from the NCUA's website (https://www.ncua.gov), which is available to the general public and subject to oversight and auditing measures. This population aligned with my overarching research question about if a relationship existed between the independent variables (regulatory compliance cost and operation cost) and the dependent variable (profitability).

Sampling

In this study, I used the probabilistic simple random sampling. According to Etikan, Musa, and Alkassim (2015), probabilistic simple random is defined with distinguishing characteristics as each unit in the population has a chance of being selected in the sample. The sample should be randomized as the selected sample should be representative of the population (Andersen et al., 2015). Palinkas et al. (2015) stated that in a quantitative study, a representation of the population is essential to the generalization of results to other populations.

One strength of using simple random is that researchers could decrease the likelihood of selection bias and minimize the potential for skewed findings (Kandola,

Banner, O'Keefe-McCarthy, & Jassal, 2014; Peterson & Merunka, 2014). According to Kandola et al. (2014), researchers using probabilistic simple random require minimal knowledge of the target population, which is considered a strength of using simple random. An advantage of the probabilistic sampling method is that researchers could make strong representations of the target population (Filipowska, Kaczmarek, Kowalkiewicz, Zhou, & Born, 2009). The selection of each member in the sample is not affected by the selection of other members (Lewis, 1975). One weakness of using simple random is that researchers using probabilistic simple random cannot reach optimal findings within any fixed numbers of evaluations, which could be considered a weakness (Annaiyappa, 1991). Another weakness of using a simple random is that researchers might need a sizable sample to attain representativeness (Sproull, 1988).

I used the G*Power version 3.1.9 to compute the sample size. G*Power is free software researchers use to perform statistical power analysis to determine sample size (Macfarlane et al., 2015). Determination of the sample size in a quantitative study is necessary for explaining the statistical significance between variables (Field, 2013). In quantitative studies, increasing the sample size increases the power level, which reduces the probability of obtaining a Type 1 and Type 2 errors (Tomczak & Tomczak, 2014). Researchers use *a priori* power analysis to estimate the sample size before conducting research (Walum, Waldman, & Young, 2016). Tomczak and Tomczak (2014) stated that in the planning phase of a research, researchers should anticipate an effect size to estimate the sample size for a given power level (1- β) and significance level (α).

According to Tomczak and Tomczak, a small effect size could lead to the requirement of a large sample size to reach a certain statistical significance level, while a large effect size could lead to small sample size. Tomczak and Tomczak stated that the most popular estimates of effect size include correlation coefficient as the *Pearson's* correlation coefficient. Walum et al. (2016) suggested using a standardized *Cohen's* effect sizes of 0.1 for small, 0.3 for medium, and 0.5 for large effect size.

In other studies, researchers calculated sample size based on $\alpha = 0.05$; power levels $(1-\beta) = 0.80$; and anticipated medium effect size= 0.2 (Bosco, Aguinis, Singh, Field, & Pierce, 2015). Bosco et al. (2015) detected different correlational studies with the effect size ranging from 0.10 to 0.80. Moore (2014) conducted the study with a value of effect size at 0.498 and suggested using a larger sample size to reach generalizable findings. Heron (2015) used an effect size of 0.35 to study the relationship between officers' compensation and financial performance of firms.

I conducted *a priori* power analysis using the following values to calculate the sample size $\alpha=0.05$; power level$(1-\beta) = 0.80$; anticipated effect size =0.2. Based on the previously mentioned values to calculate the sample size, the minimum sample size calculated by the G*Power was 42 (see Appendix A). I increased the sample size to 52 to reduce potential effects of any violations of assumptions.

Ethical Research

Ethical researchers should demonstrate receptiveness, openness, and fairness to participating human subjects regarding the acquisition of informed consents (Simon,

Klein, & Schartz, 2014). Researchers should provide informed consent forms when researching human subjects (Dolan, 2015). Data for this study were retrieved from archival publicly available sources. During the data retrieval process, I did not need informed consent to retrieve the archival data as accessing data from archival sources was available to the general public. In this study, I did not have any participants as I used secondary data.

Offering incentives that might influence participants' statements or answers of questions could be unethical (Ploug & Holm, 2015). However, according to Bernstein and Feldman (2015), researchers have offered incentive payments ranging from $10 to $195 to encourage participants to enroll in studies and enhance participants' follow-up. According to Barker (2013), research protocols are based on (a) privacy and confidentiality, (b) informed consent, (c) protection of vulnerable groups, and (d) the avoidance of any harm. Obtaining the approval from the Institutional Review Board (IRB) is a necessary step to ensure compliance with ethical standards of Walden University, which could help researchers avoid conducting unethical studies. Researchers should protect names of participants or organizations to minimize the risk of harming participants or organizations. Describing detailed procedures on how a researcher intends to protect the confidentiality of participants and organizations could increase a participant's confidence in participating in studies and improve the quality of information obtained during interviews. As the data collection process in this study was based on

secondary data, and human subjects were not involved, concerns related to incentives for participants were not applicable.

The informed consent contains an emphasis on the ethical aspect of the relationship participants have with the study, risk and benefits, and the rights of participants to withdraw from the study by emailing a written request (Warriner et al., 2016). The informed consent encompasses a statement to ensure confidentiality and withdraw instructions. The voluntary agreement should stress on information related to the informed consent form, which assures the flexibility of participants to withdraw at any time without any risk or harm (Dolan, 2015). As I used secondary data in this study, the withdrawal of participants was not applicable.

When participants are involved in a study, a researcher can protect names of participants or organizations by conducting interviews in a private setting and save data and the study's information in a secured place that is locked or on a password-protected computer that is only accessed by authorized users. Using codes on data documents instead of recording identifying information could maintain the confidentiality of participants and organizations (Borgatti & Molina, 2005). Also, a researcher can help protect participants and organizations' identity by ensuring that only authorized people can access names or interviews' information, and names of participants and organizations are not mentioned in the study. Assigning a specific letter for each participant or organization and assigning a password to saved files are additional ways a researcher can use to protect the privacy of participants and organizations (Orumwense, 2018).

Ethical considerations include the protection of all participants in a study from any possible harm, ensuring that participation is voluntary, and protecting participants' privacy and confidentiality (Connelly, 2014). Linder, Elek, and Calderon (2014) discussed concerns regarding ethical challenges researchers might face about maintaining the confidentiality of participants. As I did not have participants for this study, and secondary data was publicly available, I did not need to protect organizations by excluding identities or any information in any part of this study. Data used in this analysis were stored on an internal hard drive of a password-protected computer during the study period. Data were also stored in the cloud with a password-protected access during the study period and will be stored for another period of at least 5 years after the study's completion date. After the 5 years of competing this study, I will destroy data by deleting data files from the cloud and I will physically destroy the hard drive by formatting the hard drive. The IRB approval number for this study is 08-13-19-0736714.

Instrumentation

I used Microsoft Excel as the instrument for storing, filtering, and processing data. I used Microsoft Excel version 2016, which is part of Microsoft Office 365. Microsoft Excel was appropriate because I relied on numerical data to conduct the study. Toews (2015) used Microsoft Excel to record and organize data for a study on credit unions. Toews utilized Microsoft Excel to perform statistical procedures using IBM statistical package for social sciences (SPSS) statistics. Temtime (2016) used Microsoft Excel as an instrument to import and prepare data about working capital, policies, and

profitability of small manufacturing firms, and then used the data in IBM SPSS Statistics to perform statistical analyses. As data from the NCUA's website was downloadable in a format that was compatible with Microsoft Excel, I did not need to modify the format or settings of the instrument, which improve the validity and reliability of the mentioned instrument.

The measurement scale for all variables in this study was the ratio scale of measurement. According to Lakens (2013), analysis of ratio data is useful for addressing quantitative research questions for correlational studies. Heale and Twycross (2015) stated that researchers should evaluate the validity of the instrument used in the study to ensure that the instrument measures what is required to be measured. The reliability of the instrument affects the quality of the study, which relates to the stability and consistency of the instrument (Heale & Twycross, 2015). The concepts that I measured with the mentioned instrument were regulatory compliance cost, operation cost, and profitability, which were downloaded to Microsoft Excel sheet from the NCUA's website.

According to Hamann, Schiemann, Bellora, and Guenther (2013), reliability and validity analysis are ways of representing the accuracy of research instruments and the trustworthiness of the findings. Du and Zhou (2012) defined reliability as the degree to which a measure is free from any random errors and produces similar results in different circumstances. Engberg and Berben (2012) stated that the test-retest reliability is the consecutive stability of a test from one session to another. Reliability of secondary data

sources derives from the credibility given to entities providing databases and reports (Tasic & Feruh, 2012). Parker (2012) claimed that researchers need to ensure that secondary sources are free from material error and bias. Parker stated that secondary data sources should contain all information necessary to measure what needed to be measured consistently. Tasic and Feruh (2012) argued that a reliable secondary data would give same results consistently and repeatedly. According to Johnston (2014), if publicly traded and regulated entities adhere to legal and financial reporting requirements, the use of archived financial reports stands the test of reliability. Boyd, Bergh, Ireland, and Ketchen (2013) argued that independent auditing, verification, and attesting processes are some quality indicators for financial reports of regulated firms. However, computational errors, sample inadequacy, and missing data can affect the reliability and quality of data (Butler, Martin, Perryman, & Upson, 2012).

Instrument reliability relates to the internal consistency of the instrument used in the study (Patterson et al., 2018). In this study, I used Microsoft Excel to collect data. As I used secondary data for this study, the reliability of the instrument was not a concern. Data for this study were obtained from the NCUA's databases. Financial statements and annual reports from the NCUA's databases are reliable as the NCUA is subject to governmental regulations and annual audits (Magro, 2016). This study involved analysis of archival data from financial reports that were publicly available. I did not need a permission to collect data except for IRB approval as NACU's databases were not proprietary and there were no human participants during the data-collection process. As

the mentioned instrument was part of Microsoft Office 365 which I have a license to use, I did not need permission to use the instrument in this study.

Data Collection Technique

Data collection method in this study involved collecting data from secondary data sources. The research question for this study was: Does a predictive relationship exist between regulatory compliance cost, operation cost, and profitability of credit unions? Data for this study were collected from NCUA's databases. Before downloading data from the NCUA's database, I identified relevant data needed to answer the research question. Identifying relevant data for this study involved determining the specific time-period mentioned in the study (2010 to 2015) and data that could affect costs and profitability of credit unions. Then, I accessed NCUA's website at https://www.ncua.gov to download the required data from *Call Reports.* According to NCUA (2017), goal performance measurements utilizing *Call Reports* were developed as examiners at NCUA can obtain financial information periodically, and the reports provide the most complete and reliable database for NCUA. According to NCUA (2017), all federally insured credit unions must file a 5300 *Call Report* with NCUA on a quarterly basis using credit union online, which is a web-based program used by credit unions' managers and state supervisory agencies to submit and certify operational and quarterly financial information to NCUA and, where examiners can review financial reports for accuracy. NCUA is an independent federal agency that ~~e~~nsures deposits at federally insured credit unions, protects the members who own credit unions, and charters and regulates federal credit

unions (NCUA, 2017). NCUA's database compiles data on credit union system's financial performance, merger activities, and economic trends that can affect the safety and soundness of federally insured credit unions (NCUA, 2017). *Financial Performance Reports* are a financial summary for a credit union, which include (a) assets, (b) liabilities, (c) capital, (d) income, and (e) expenses (NCUA, 2017). Users may request *Financial Performance Reports* shortly after credit union's *Call Report* data has been submitted and validated by regulators (NCUA, 2017). *Call Report* data files are compressed files and must be uncompressed using a compatible program as WinZip (NCUA, 2017).

After I obtained the IRB's approval, I collected data through electronic retrieval of financial statements from 52 credit unions from NCUA's databases from 2010 to 2015. This data collection technique was similar to the method investors and financial analysts use to evaluate the financial performance of publicly traded companies (Johnston, 2014). The first step in secondary data collection is to ensure that sources contain relevant data to answer the research question (Hamann et al., 2013). An orderly collection of financial data is important to ensure that researchers have reliable data that offers a solid foundation for rigorous analysis (Tasic & Feruh, 2012). The collected data was limited to (a) federally credit unions in the state of Texas, (b) with less than $10 million in assets, and (c) data for the 2010 to 2015. I accessed the online NCUA's website at https://www.ncua.gov, and then accessed the *Call Reports* section to collect raw data. The second step in data collection included (a) importing the data into Microsoft Excel,

(b) organizing the relevant data for all variables from 2010 to 2015, and (c) importing the values to SPSS for analysis. I used Microsoft Excel to organize data for this study. The gathered data was organized in Microsoft Excel by (a) credit union name, (b) charter number, (c) state, (d) total asset size, and (e) accounts' types (i.e. expense accounts).

Retrieving secondary data from electronic databases has both advantages and disadvantages. Johnston (2014) stated that gathering secondary data is inexpensive as researchers could bypass instrument creation and data collection stages by drawing data from existing sources. Researchers use secondary data sources to overcome the problem of accessing the research data and gathering sensitive information (Johnston, 2014). Parker (2012) reported that secondary data saves time and financial resources by supplementing primary data. Johnston also argued that secondary data could minimize biases. Butler et al. (2012) claimed that the use of secondary data without involving human subjects minimizes threats to ethical principles. According to Eckford and Barnett (2016), collecting online data has benefits as avoiding the need for primary data entry and saving the cost of instrument administration. Li et al. (2015) asserted that electronic forms of data collection make data collection process easier than paper forms and improve data reliability. According to Wohlin and Aurum (2015), researchers who might have difficulties with accessing human participants might choose to collect archival data for analysis. On the other hand, secondary data has limitations. Researchers collecting data from archival databases could suffer from missing or incomplete data, which might not contain all the information needed to address the research problem under

investigation (Johnston, 2014). Tasic and Feruh (2012) stated that sometimes secondary data might not precisely align with the area of the research construct, which could generate biased data. Even though using secondary data in research might be cost effective and efficient, secondary data can be outdated, definitions for variables could change over time, and datasets could be incomplete, which could limit the scope and accuracy of research (Behringer et al., 2014).

Leon, Davis, and Kraemer (2011) stated that conducting a pilot study could increase the feasibility of a research study and simplify techniques for data collection and analysis. Original quantitative instruments require use of a pilot study to produce validity and reliability data. As I did not use an original instrument, a pilot study is not applicable. Lancaster (2015) stated that the primary function of a pilot study is to evaluate the possibility of success and threats to the validity of a study.

Data Analysis

The research question and hypotheses of the study were as follows:

Does a linear relationship exist between regulatory compliance cost, operation cost, and profitability of credit unions?

H_0: A significant linear relationship does not exist between regulatory compliance cost, operation cost, and profitability of credit unions.

H_1: A significant linear relationship does exist between regulatory compliance cost, operation cost, and profitability of credit unions.

Regression analysis is a statistical technique that helps researchers to explore relationships between numerically measured independent and dependent variables, which could help researchers predict one variable based on values of other variables (Hopkins & Ferguson, 2014). According to Armor, Cotla, and Stratmann (2017), regression analysis allows researchers to identify how a change in an independent variable might affect the dependent variable.

In this study, I conducted a linear multiple regression analysis. The multiple regression analysis was appropriate for this study as the research question was about a predictive relationship that might exist between independent variables (regulatory compliance cost and operation cost) and the dependent variable (profitability of credit unions). Multiple regression is the appropriate method of quantitative analysis when there are two or more independent variables as researchers use regression analysis to measure relationships between two or more variables (Hopkins & Ferguson, 2014; Zvizdojević & Vukotić, 2015). Correlation and regression analyses are used to measure linear relationships between two variables. According to Aggarwal and Ranganathan (2017), correlational analysis measures the strength of a relationship between variables, while regression analysis predicts the relationship between two variables. Selection of correlational analysis depends upon the research question and the level of measurement (ordinal, interval, or ratio) of variables (Curtis et al., 2016). As variables in this study were ratio scale levels of measurement, the linear multiple regression analysis was suitable. According to Tabachnick and Fidell (2013), selecting a statistical analysis

technique depends on the type of research question, the number of constructs and variables in the study, and the scale of measurement. In quantitative research, researchers use measurement and statistical analysis of numerical data to explain data and employ regression analyses to measure linear relationships between variables (Schrodt, 2014).

ANOVA is another statistical test researchers' use. ANOVA is used to compare mean differences between samples (Tarlow, 2016). ANOVA is a test that is suitable when the dependent is variable continuous, while independent variables are categorical (Hesamian, 2016). As the independent variables in this study were not categorial, and there was no need to examine mean and group differences between samples, ANOVA test was not appropriate for this study. Bivariate linear regression is used to determine if the independent variable can predict the independent variable and can only be used when a study has one independent variable and one dependent variable (Halabí & Lussier, 2014). As I have more than one independent variable, the bivariate linear regression was not appropriate for this study. Researchers use discriminant analysis when the dependent variable is categorical (Seng, 2016). Also, researchers use discriminant analysis to test the relationship between variables and to classify variables into groups based on one or more measures (Orcher, 2014). The discriminant analysis was not appropriate for this study as none of my variables are categorical and I did not need to group variables. Researchers use factor analysis to explain correlation patterns within variable sets (Weaver & Maxwell, 2014). According to Weaver and Maxwell (2014), factor analysis is appropriate in identifying the small number of factors that explain the major variance

observed in many variables. Factor analysis was not appropriate for this study as I did not have variable sets in this study.

According to Slater, Joksimovic, Kovanovic, Baker, and Gasevic (2017), data cleaning procedures involve identifying and removing values from the data set that appear incorrect or inconsistent with the study. The data cleaning process includes identifying and removing outliers or errors (Fatima, Nazir, & Khan, 2017). During research, researchers may have to deal with situations of missing data. Data cleaning process includes examining and identifying any missing records or invalid components in data sets. Hashem et al. (2015) postulated that data cleaning is an important step in the research process. The purpose of data cleaning is to minimize complications by correcting invalid data or removing missing records (Kongara & Punyasesudu, 2015). Researchers may utilize the traditional method (loading into a spreadsheet) or certain tools for cleaning data such as Google OpenRefine and Data Wrangler by Stanford Visualization Group (Batrinca & Treleaven, 2015). Li et al. (2015) stated that innovative data collection tools could make data cleaning process efficient when involving a large amount of raw data. When I loaded data into a spreadsheet, I looked for missing values or information that could influence the hypothesized question. I organized data in the spreadsheet to make visual inspection of data easier, which helped me in identifying opportunities to replace missing values or to swap values or descriptions of data when necessary. I utilized available tools as find and replace in Microsoft Excel to clean data prior to exporting values to SPSS, which helped in generating accurate results.

Microsoft Excel can be used to replace missing values, exclude outliers, and formatting and centering data (Toews, 2015). I used Microsoft Excel to filter and organize data before exporting to SPSS. Missing data could have an effect on the validity of the study. There are different methods to deal with missing values. Missing data in a study could introduce bias, make the handling and analysis of data more difficult, and reduces efficiency. Cheema (2014) stated that case deletion and imputation-based methods are common missing data handling approaches, where researchers can simply discard those records with missing data or replace them. Cheema stated that using inappropriate handling approaches of missing data might result in poorly estimated parameters and reduced power of analysis. Ebrahim et al. (2014) stressed that poor handling of missing data could result in poor generalization of a study. According to Aste, Boninsegna, Freno, and Trentin (2015), researchers could resolve missing data problems by deleting the whole case (entire row in the dataset) in quantitative study. While deleting cases of missing data in a study could affect the sample size, substituting missing data with a mean could underestimate the variance (Leys, Ley, Klein, Bernard, & Licata, 2013). According to Osborne (2012), researchers using the mean substitution method could substitute any missing value with the mean as the mean is considered the best estimate of missing values. In this study, missing data was not an issue as secondary data for this study was retrieved from NCUA's databases, which is regulated and audited on regular basis.

According to Hopkins and Ferguson (2014), assumptions of relationships between independent and dependent variables are (a) linearity, (b) homoscedasticity, (c) independence of residuals, and (d) normality of distribution. According to Pallant (2016), normality, linearity, homoscedasticity, and multicollinearity of data distribution are assumptions for multiple linear regression analysis, which represent certain patterns respectively in statistical plotting. Jeong and Jung (2016) stated that the assumption of linearity indicates that the relationship between independent and dependent variables is linear. The scatter plot is a feature in SPSS which is important to check for normality, linearity, and homoscedasticity. If a scatter plot of values of residuals against the outcome of predicted values shows a clear pattern, then linearity assumption is violated (Field, 2013). Homoscedasticity's assumption is the condition when random errors have equal variances (Hopkins & Ferguson, 2014). In regression analysis, it is assumed that at each level of the independent variables, variances of the residuals should be constant (Field, 2013). The constancy of the variances in this manner is referred to as homoscedasticity, while the absence of constancy is referred to as heteroscedasticity (Field, 2013). Independence of residuals refers to the assumption when observations between groups are independent (Zvizdojević & Vukotić, 2015). The assumption of normal distribution is the situation where distribution of residuals has normal distribution (Hopkins & Ferguson, 2014). Boesch, Schwaninger, Weber, and Scholz (2013) postulated that multicollinearity is a condition when independent variables in a study are highly correlated (0.90 or greater). Researchers can examine multicollinearity by

observing the correlation coefficients among the independent variables from the SPSS output on the correlation matrix (Boyd et al., 2013).

Data assumptions could be a threat to the validity of a study. Statistical analyses depend on different assumptions about data distribution. When data assumptions are violated, the validity of statistical conclusion could be affected (Solomon, Howard, & Stein, 2015). Multiple linear regression analyses share a few assumptions with other types of analyses like normality, linearity, and homoscedasticity (Pallant, 2016). Researchers should not assume the normality of data and could use other methods as bootstrapping for resampling purposes (Acharya, Prakash, Saxena, & Nigam, 2013; Bro & Smilde, 2014). Banjanovic and Osborne (2016) postulated that researchers could use bootstrapping method for resampling when an assumption of data is violated. Syntetos, Babai, and Gardner (2015) stated that normality, homoscedasticity, linearity, or other assumptions of data can be tested on a scatterplot, and violations may be corrected using bootstrapping. Arya (2016) and Sillabutra et al. (2016) claimed that bootstrapping technique is a nonparametric test that randomly resamples data and is used to validate regression models. Researchers apply bootstrapping methods to estimate reliable statistics when data normality assumptions are violated, and when there are questions concerning the validity of the usual distribution and assumptions (Cohen, Cohen, West, & Aiken, 2013).

In SPSS version 24, the usual default significance level is set at .05, which is a typical level that is considered statistically significant (Ives, 2015). The result of *p* value

(p <.05) would mean that the dependent variable has a good fit in the model to influence the dependent variable, which will suggest that the null hypothesis is unlikely to be true. The estimated effect size for the study is .20 as an input of G*Power *a priori* power analysis to calculate the required sample size. The confidence level measures how much of samples may contain true parameters from the population. Hedge, Powell, and Sumner (2017) stated that a simple way to calculate the confidence interval is 100% * (1-α). The confidence interval in this study is 95%.

In a regression analysis, the regression coefficient represents how sensitive the change of the dependent variable is when one of the independent variables' changes (Hedge et al., 2017). Therefore, a high regression coefficient will mean that variables in the study have a strong predictive relationship. When completing the linear multiple regression analysis, results of tests could support a response of whether to accept or reject predefined hypotheses, which will provide the legitimacy to answer the research question. If the result of p value is less than the significance level, as assumed, the test will be significant, which will indicate a rejection of the null hypothesis and acceptance of the alternative hypothesis.

Study Validity

There are two kinds of validity, internal and external. According to Zellmer-Bruhn, Caligiuri, and Thomas (2016), internal validity refers to the extent to which results of studies support a causal relationship between variables. When researchers use an experimental design, internal validity could be at risk (Zellmer-Bruhn et al., 2016). As

this study was a quantitative correlational study, internal validity should not be a concern. Researchers using simple random sampling might achieve high internal and external validity (Delost & Nadder, 2014; Kandola et al., 2014). However, concerns about statistical conclusion validity might exist (Kratochwill & Levin, 2014).

Statistical conclusion validity is the use of appropriate statistics to make inferences about the association between dependent and independent variables (Lachmann, Trapp, & Trapp, 2017). According to Taylor and Spurlock (2018), failing to address threats to statistical conclusion validity could lead to faulty statistical inferences as Type I or Type II errors. Green and Salkind (2014) stated that Type I error refers to the probability of rejecting a true null hypothesis, and Type II error refers to the probability of accepting a factually false null hypothesis. Factors that could affect the statistical conclusion validity are (a) reliability of the instrument, (b) data assumptions, and (c) sample size (Emerson, 2015).

According to Patterson et al. (2018), the reliability of the instrument is associated with the internal consistency of the instrument used in the study. As I used secondary data in this study, and I did not use an instrument to collect data, internal consistency in this study should not be a concern. Data for this study were obtained from financial data reports from NCUA's databases. Financial reports from NCUA's databases are subject to audit and validation requirements to ensure the reliability of data (NCUA, 2017).

There are specific assumptions when using multiple linear regression analyses. Normality, linearity, homoscedasticity, and multicollinearity of data distribution are

assumptions for multiple linear regression analysis (Pallant, 2016). According to Jeong and Jung (2016), the assumption of linearity specifies that the relationship between independent and dependent variables is linear. The scatterplot is a feature in SPSS researchers can use to check for normality, linearity, and homoscedasticity (Syntetos et al., 2015). I tested the linearity of data in this study by visually examining the scatterplots. According to Leys et al. (2013), outliers can influence the results of a regression analysis, and researchers can use a histogram to identify any outliers.

According to Field (2013), determining the sample size in a quantitative study is important for researchers to help explain the statistical significance between variables. Tomczak and Tomczak (2014), claimed that increasing the sample size in quantitative studies would increase the power level, which decreases the probability of getting Type 1 and Type 2 errors. Walum et al. (2016) stated that researchers should use *a priori* power analysis to calculate the sample size. Tomczak and Tomczak stated that in the planning phase of research, researchers need to choose an effect size to estimate the sample size for a given power level (1- β) and significance level (α). In this study, I used the G*Power version 3.1.9 to calculate the sample size (see appendix A).

External validity is the extent to which the study findings may be generalized to larger populations, different settings, and different measurements (Zellmer-Bruhn et al., 2016). Palinkas et al. (2015) argued that using a probability sampling strategy could increase the generalizability of a study (external validity). According to McKenzie and Woodruff (2014), one strategy researchers can use to overcome threats to external

validity is to obtain an adequate sample size that is a representative of the target population. Bevan, Baumgartner, Johnson, and McCarthy (2013) stated that if a sample does not represent the target population adequately, a selection bias may be a threat to external validity. Researchers cannot generalize the findings from a biased sample to the larger population (Bevan et al., 2013).

Transition and Summary

Section 2 contains a plan to conduct research regarding the determination of a predictive relationship between regulatory compliance cost, operations cost, and profitability of credit unions. In section 2, I discussed (a) the role of researchers, (b) participants, (c) research methods and design, (d) population and sampling, (e) ethical research, (f) instrumentation, (g) data collection and analysis, and (h) the study validity. In Section 2, I explained the rationale for selecting a quantitative correlational study. I explained from where data were obtained, and how I used the instrument (Microsoft Excel) to download and clean the data before transferring data to SPSS for analyses. Section 3 contains the presentation of the study's findings, application to professional practice, implications for social change, recommendations for action, recommendations for further research, reflections, and a conclusion.

Section 3: Application to Professional Practice and Implications for Change

Introduction

My purpose in this quantitative correlational study was to examine the relationship between regulatory compliance cost, operation cost, and profitability of credit unions. The independent variables were regulatory compliance cost and operating cost and the dependent variable was profitability. From the results of the statistical analysis, there was a significant linear relationship between regulatory compliance cost, operation cost, and profitability of credit unions, based on data of a sample size with a decent generalizability to the population.

Presentation of Findings

The overreaching research question was: Does a linear relationship exist between regulatory compliance cost, operation cost, and profitability of credit unions? The statistical analysis of sample data of regulatory compliance cost, regulation cost, and profitability of credit unions produced some perspectives. Details of the statistical analysis findings in this section include (a) the testing of assumptions, (b) descriptive statistics, (c) inferential statistics results, and (d) a theoretical conversation pertaining to the findings.

Tests of Assumptions

The data preparation and the preliminary analysis of data were important procedures before the actual statistical analysis. Multiple linear regression analyses share a few assumptions with other types of analyses as normality, linearity, and

homoscedasticity (Pallant, 2016). According to Pallant (2016), normality, linearity, homoscedasticity, and multicollinearity of data distribution are assumptions for multiple linear regression analysis. SPSS (Version 24) software was used for testing the assumptions of normality, linearity, homoscedasticity, outliers, and multicollinearity.

Normality and linearity. *Normality* refers to the normal distribution of data, and linearity refers to the assumption of a continuous baseline trend of data (Hopkins & Ferguson, 2014). Sample data should be near a normal distribution to comply with parameters of certain statistical tests (Leys et al., 2013). The linearity assumption in multiple regression analysis is the assumption that the dependent variable has a linear relationship with the independent variables (Harrell, 2015). The evaluation for normality, linearity involved examining the histogram of the regression- standardized residuals (see Figure 1) and the normal probability plot (P-P) of the regression standardized residual (see Figure 2). The visual examination of the histogram (see Figure 1) and P-P plot (see Figure 2) did not reveal any major violations of normality, linearity. The visual inspection of the P-P plot shows dots near a diagonal line from the bottom left of the chart to the top right. Psaradakis and Vávra (2018) suggested that examining the skewness of data is an effective way to test normality assumption. To examine the skewness of data in Table 1, I divided the skewness value by the standard error of skewness (.340/.330=1.03), which resulted in a value that is less than 1.96; therefore, the skewness is not significant, and data are normally distributed (see Table 1).

Table 1

Statistics-Skewness

Profitability-ROE		
N	Valid	52
	Missing	0
Skewness		.340
SE of Skewness		.330

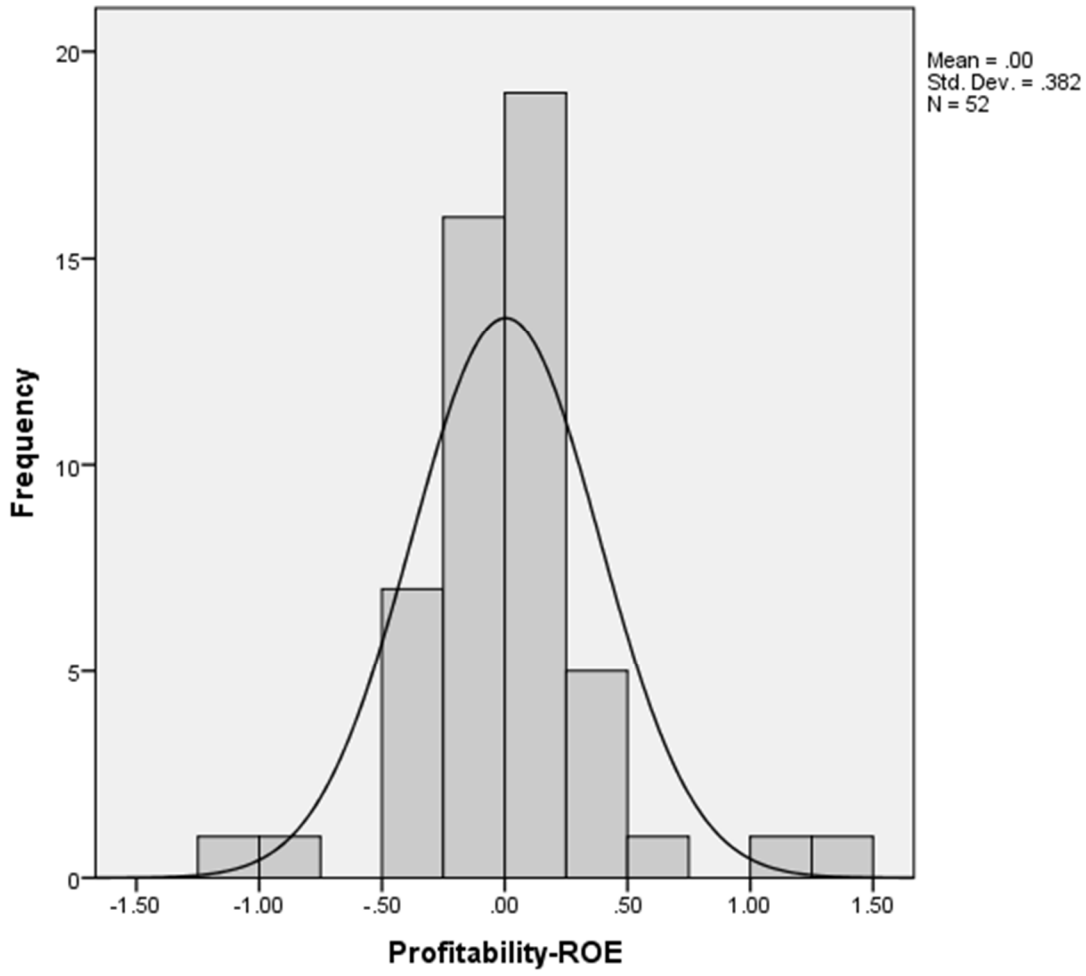

Figure 1. The histogram of regression standardized residual.

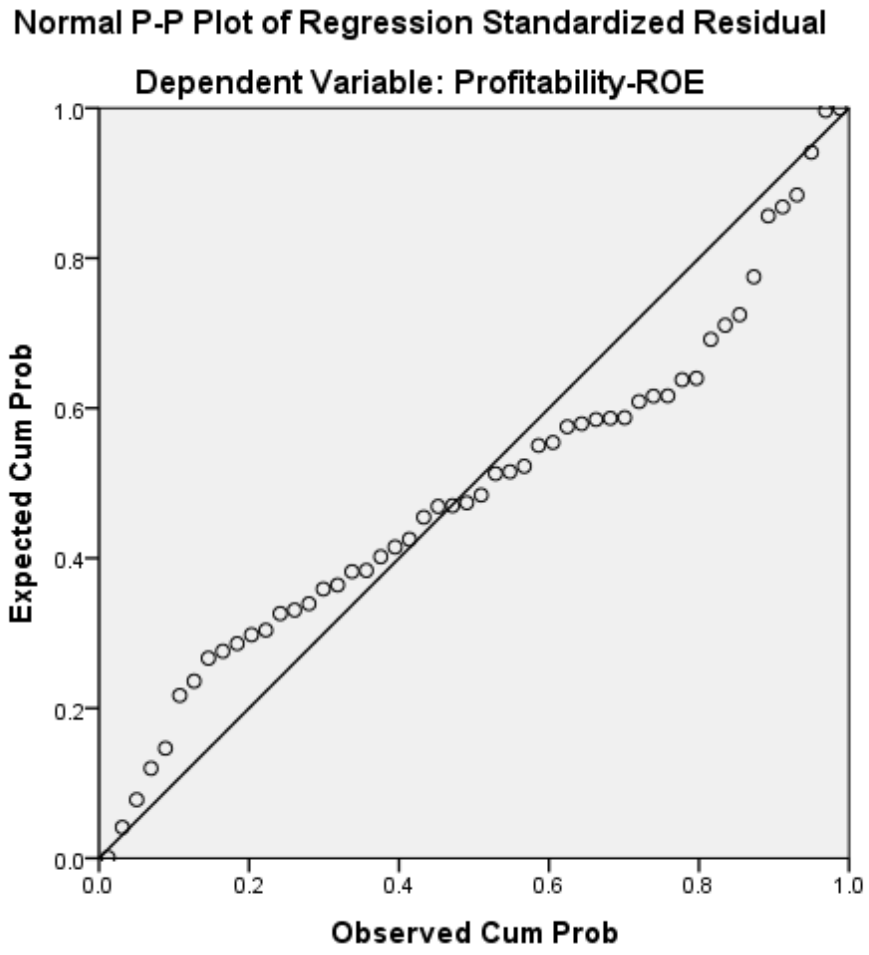

*Figure 2.*The normal P-P plot of regression standardized residual.

Homoscedasticity. *Homoscedasticity* refers to a clear pattern of distribution of data (Hopkins & Ferguson, 2014). The absence of the homoscedasticity assumption increases the possibility of a Type I error and erroneous conclusions (Chang, Pal, & Lin, 2017). I used SPSS to test for homoscedasticity. I visually evaluated homoscedasticity by using the scatterplot of the standardized residuals (see Figure 3). The absence of a clear pattern in the scatterplot of the standardized residuals (see Figure 3) supports the

homoscedasticity assumption. The scatterplot of standardized residuals did not delineate any clear and systematic patterns.

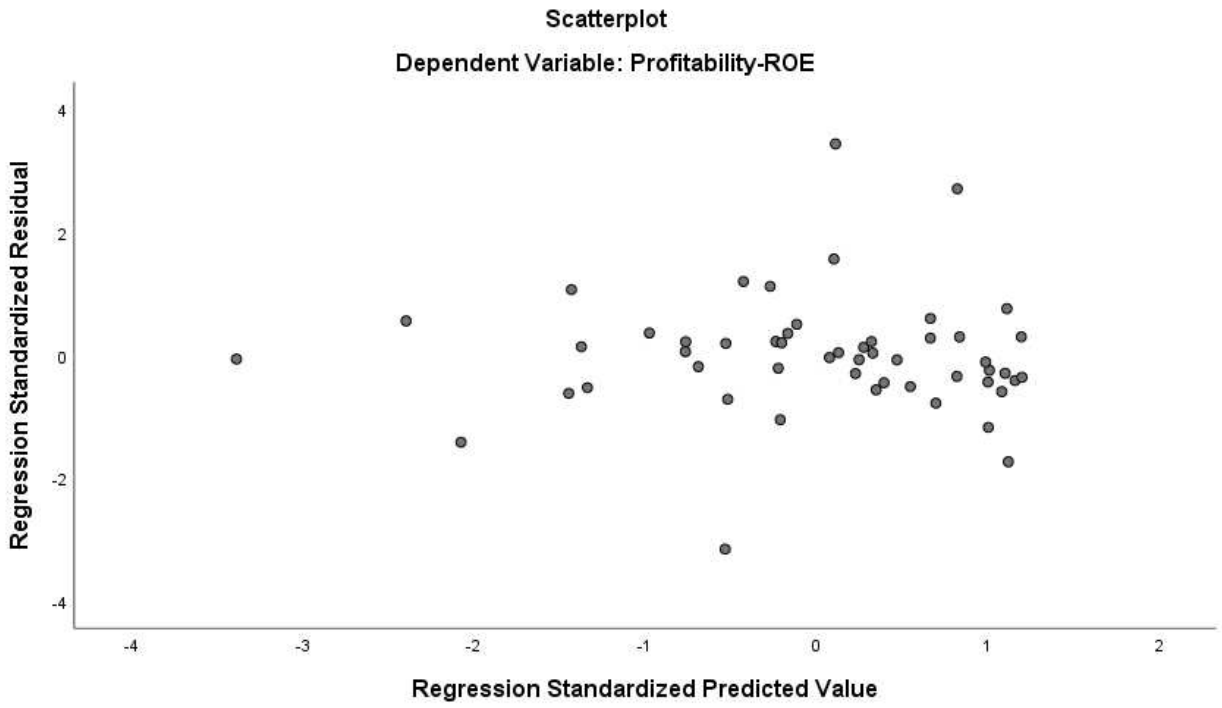

Figure 3. A scatterplot of regression standardized residual.

Outliers. *Outliers* are anomalies in data and outlier observations violate normality, which may be an indicator of bad data (Pallant, 2016). Outliers can also alter the outcome of analysis. Leys et al. (2013) suggested inspecting the boxplot for detecting outliers. The rectangle in the boxplot represents the distribution of most sample data. The line in the middle of the rectangle represents the median value. The bars on the top and bottom of the rectangle flattened to the maximum and minimum values, respectively. Any additional values above or below the bars are considered outliers (Leys et al., 2013). The boxplot (see Figure 4) shows few outliers.

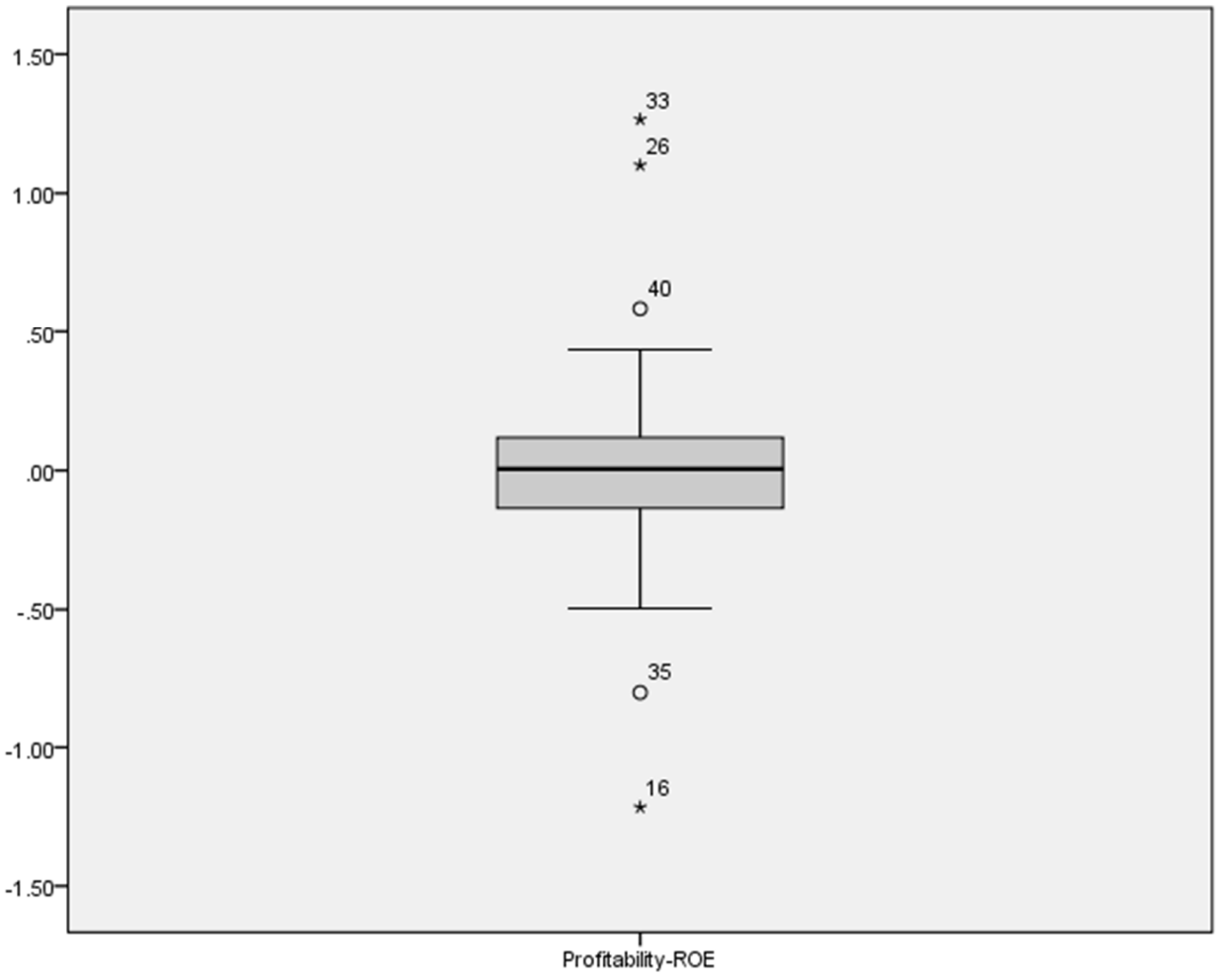

Figure 4. A boxplot shows the outliers.

In addition to visually testing the scatterplot of regression standardized residual for homoscedasticity (see Figure 3), and the boxplot for outliers (see Figure 4), I used SPSS to calculate the residuals statistics in Table 2. Cook's distance is used in regression analysis to find influential outliers in a set of predictor variables (Field, 2013). Outliers that have Cook's Distance of <1 were accepted in the data set as these outliers were not

influential enough to change the outcome of the predictive model (Field, 2013). Cook's Distance in Table 2 showed a maximum value of (.123). I also checked the Mahalanobis distances in the data file for any critical chi-square value exceeding 13.82 (see Table 2). The maximum value of the Mahalanobis distances was 15.519 (see Table 2). Based on the review of data and the scatterplot in Figure 6, I found one record with Mahalanobis distance over 13.82 (see Figure 6). As I found no error with the record, and the results of the predictive model would not change, therefore, I did not identify any violation to assumptions of normality, linearity, and homoscedasticity.

Table 2

Residuals Statistics

	Minimum	Maximum	Mean	*SE*	*N*
Predicted value	-.4724	.1727	.0039	.14066	52
Std. predicted value	-3.386	1.200	.000	1.000	52
SE of predicted value	.051	.206	.081	.032	52
Adjusted predicted Value	-.4647	.1924	.0042	.14074	52
Residual	-1.14502	1.24601	.00000	.35556	52
Std. residual	-3.157	3.435	.000	.980	52
Stud. residual	-3.206	3.487	.000	1.000	52
Deleted residual	-1.18082	1.28380	-.00030	.37038	52
Stud. deleted residual	-3.569	3.980	.006	1.072	52
Mahal. distance	.012	15.519	1.962	2.977	52
Cook's distance	.000	.123	.014	.029	52
Centered leverage Value	.000	.304	.038	.058	52

Note. Dependent variable: Profitability-ROE.

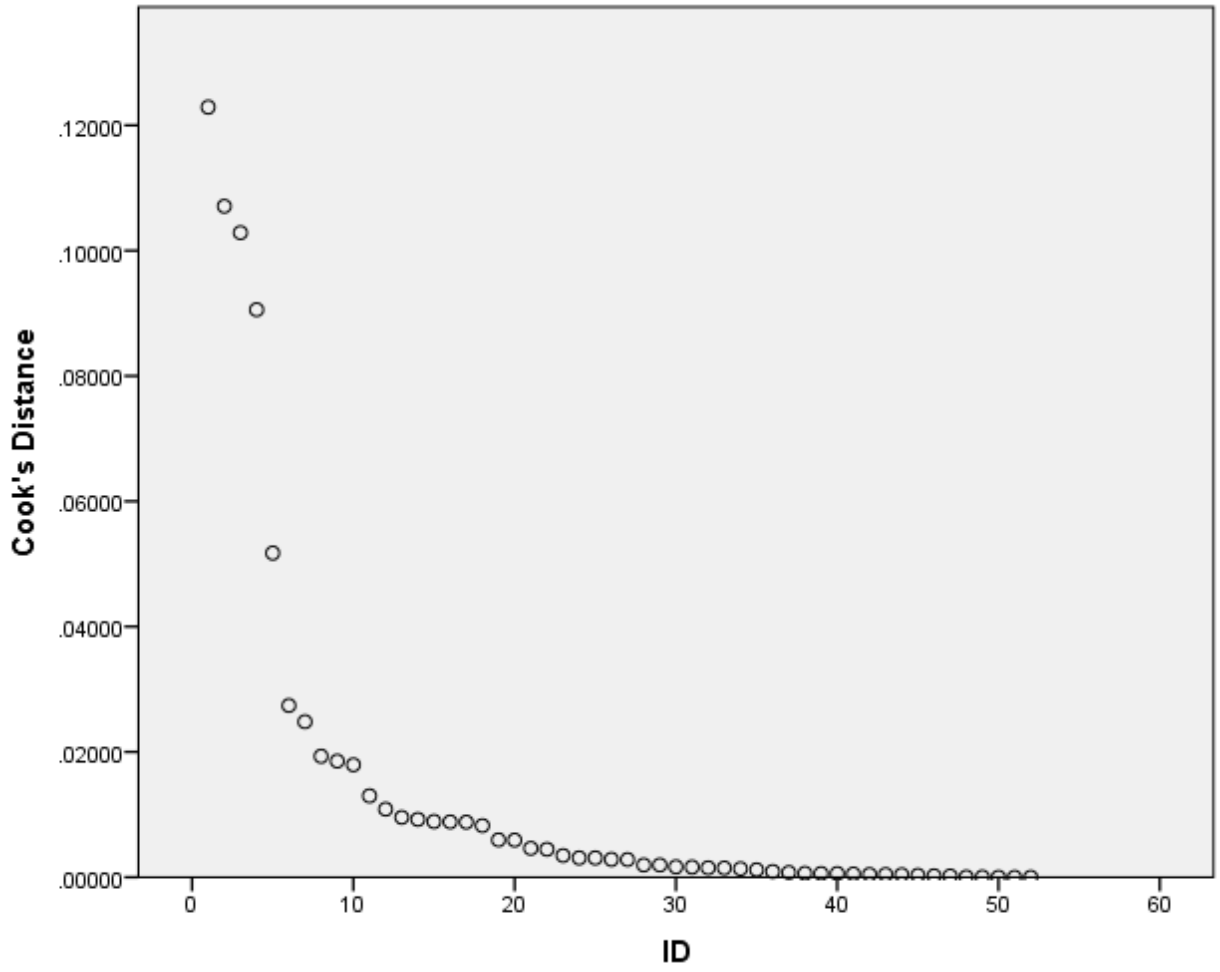

Figure 5. A scatterplot shows Cook's Distance.

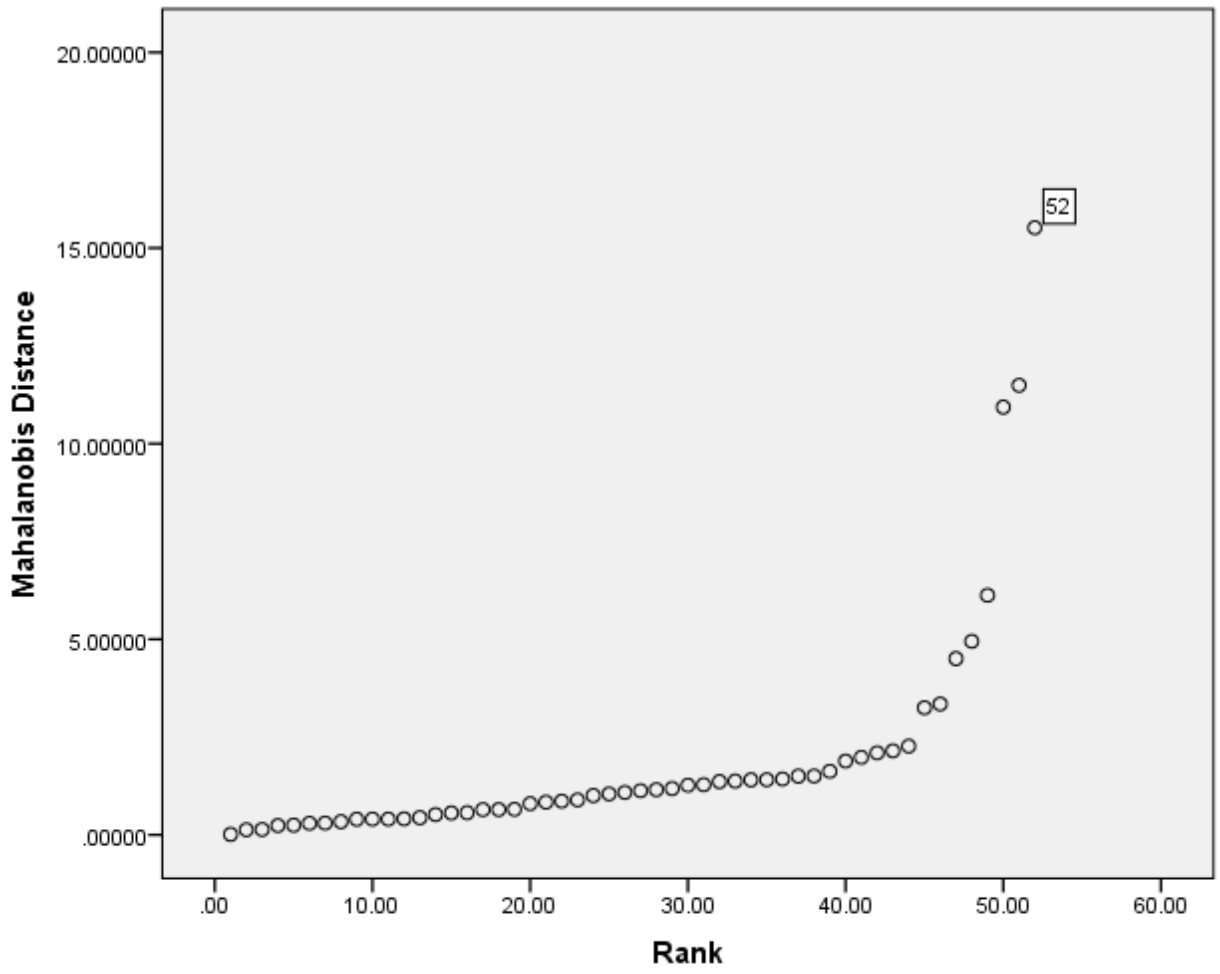

Figure 6. A scatterplot shows the Mahalanobis distances.

Multicollinearity. *Multicollinearity* occurs when two independent variables are highly correlated. Multicollinearity can lead to unreliable results, large standard errors, and a false null hypothesis not being rejected (Disatnik & Sivan, 2016). Multicollinearity is detected by examining the bivariate relationship between independent variables. The level of correlation between independent variables can be problematic if the values are

too highly correlated (Disatnik & Sivan, 2016). According to Pallant (2016), if values are too high, it can become difficult to assess the effect of the independent variables on the dependent variable. A high correlation usually indicates that multicollinearity assumption has been violated (Boyd et al., 2013). I used the Pearson Correlation test in SPSS to examine multicollinearity (see Table 3). The Pearson Correlation for the independent variables (regulatory costs and operation costs) was (.998), which indicates that the independent variables are highly correlated. Also, the scatterplot (see Figure 7) indicates a high positive correlation between the independent variables (regulatory compliance cost and operation cost). As the multicollinearity assumption was violated, I increased the sample size from 42 to 52 to minimize potential violations of any statistical assumptions.

Table 3

Pearson's Correlation Coefficient

		Regulatory costs	Operation costs
Regulatory costs	Pearson correlation	1	.998
	Sig. (2-tailed)		.000
	N	52	52
Operation costs	Pearson correlation	.998	1
	Sig. (2-tailed)	.000	
	N	52	52

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

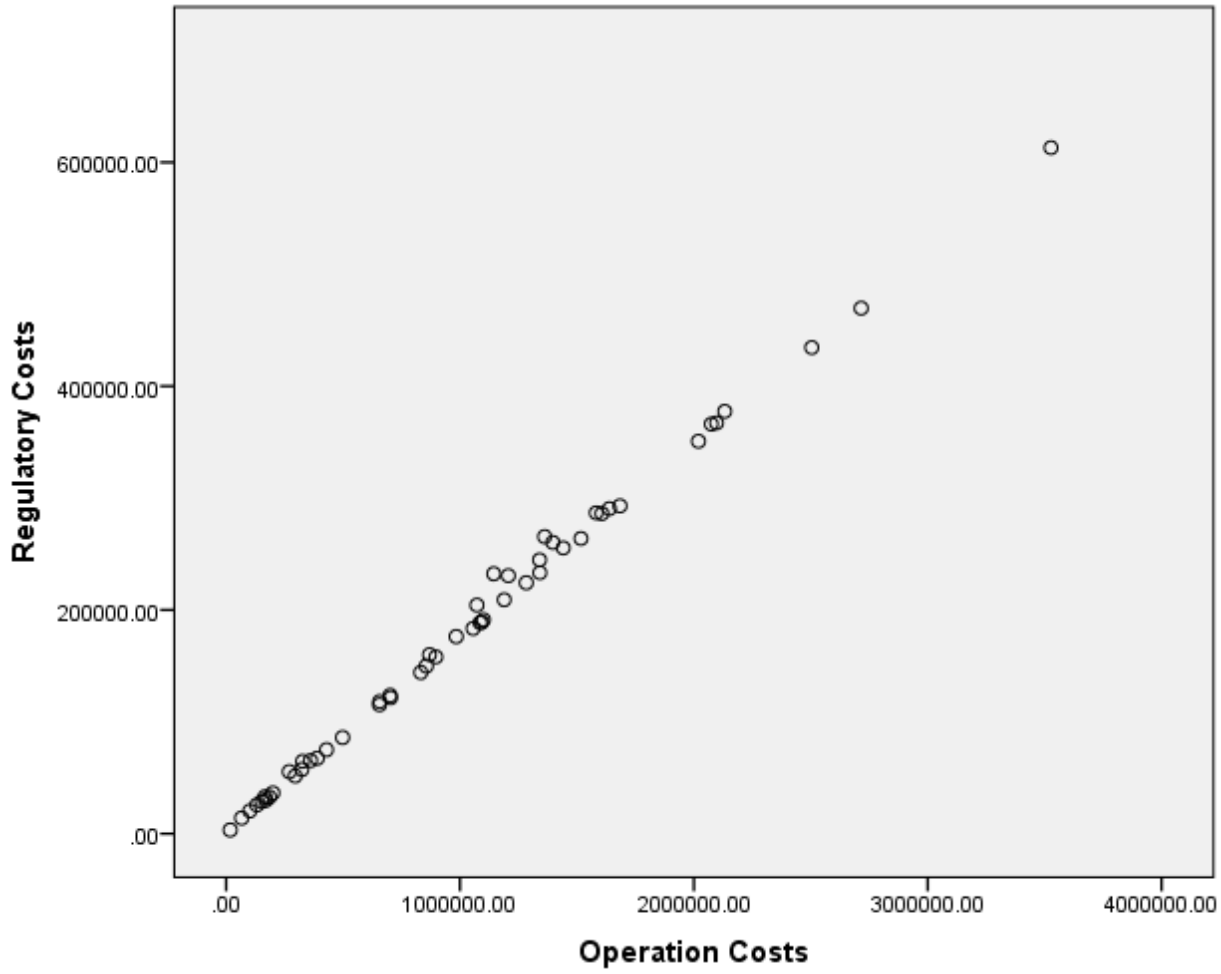

Figure 7. Scatterplot of the independent variables.

Descriptive Statistics

Descriptive statistics provide summarized values of variables, such as mean and standard deviation. Pallant (2016) advised to always check for descriptive statistics to see if values make sense. Descriptive statistics of the study variables appear in Table 4. The total number of data observations was 52 (*N*=52).

Table 4

Descriptive Statistics

	Mean	Std. Deviation	*N*
Profitability-ROE	.0039	.38237	52
Regulatory costs	183181.7412	133194.24510	52
Operation costs	1027733.5580	761977.52260	52

Inferential Results

I used standard multiple linear regression with a two-tailed significance level of 5% ($\alpha = .05$) to examine the relationship between regulatory compliance cost, operation costs, and profitability of credit unions. The independent variables were regulatory compliance cost and operation cost and the dependent variable was profitability. The null hypothesis was: A significant linear relationship does not exist between regulatory compliance cost, operation cost, and profitability of credit unions. The alternative hypothesis was: A significant linear relationship does exist between regulatory compliance cost, operation cost, and profitability of credit unions. I conducted preliminary analysis to assess possible violations of the assumptions of standard regression analysis such as normality, linearity, homoscedasticity, and multicollinearity. The multicollinearity assumption was violated as there were no data to measure regulatory compliance costs except as a percentage of total non-interest expense, which created a high correlation between the independent variables (regulatory compliance cost and operation cost). The model was able to significantly predict profitability of credit

unions, F (2, 49) = 3.834, p = .028. The effect size which is measured by R^2 indicated that the linear combination of the independent variables (regulatory compliance cost and operation cost) explained 13.5% of variations in profitability (see Table 5).

Table 5

Model Summary

				Change statistics			
Model	R	R Square	Adjusted R Square	F Change	df1	df2	Sig. F Change
1	.368[a]	.135	.100	3.834	2	49	.028

Even though the multiple regression model rejected the null hypothesis, and as of the violation of multicollinearity, the coefficients of the independent variables in the multiple regression analysis returned inaccurate betas (see Table 6). The coefficient calculations for the multiple regression analysis showed a positive coefficient for regulatory compliance cost and a negative coefficient for operation cost. Based on the multiple regression model, the standardized beta (β) for regulatory costs = 1.382, which means that for every 1% increase in profitability, there is a 1.382% increase in regulatory cost; however, according to Pearson correlation, both independent variables have negative correlation with profitability. The Pearson correlation for regulatory costs was 0.355, which indicates that for a 1% increase in regulatory costs, profitability will decrease by 0.355%. Additionally, the coefficient of independent variable (operation cost) was -0.360, which indicates that for every 1% increase in operation cost, profitability will decrease by 0.36% (see Table 6 and Table 7). Even though a

combination of the independent variables (regulatory compliance cost and operation costs) were statistically significant to predict profitability in the multiple regression analysis model, as of the multicollinearity violation noted earlier, regulatory compliance cost alone was not statistically significant (t=.57, p=.569). Also, operation cost alone was not statistically significant to account for the rejection of the null hypothesis (t=-.721, p=.474).

Table 6

Coefficients

		Unstandardized coefficients		Standardized coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.174	.089		1.960	.056
	Regulatory costs	3.968E-6	.000	1.382	.573	.569
	Operation costs	-8.732E-7	.000	-1.740	-.721	.474

Table 7

Correlations

		Profitability-ROE	Regulatory costs	Operation costs
Profitability-ROE	Pearson correlation	1	-.355**	-.360**
	Sig. (2-tailed)		.010	.009
	N	52	52	52
Regulatory costs	Pearson correlation	-.355**	1	.998**
	Sig. (2-tailed)	.010		.000
	N	52	52	52
Operation costs	Pearson correlation	-.360**	.998**	1
	Sig. (2-tailed)	.009	.000	
	N	52	52	52

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

To calculate the *p* value for each independent variable, while avoiding the effect of the multicollinearity on the *p* values for both variables, I conducted two single regression analysis (see Table 8 and Table 9). According to the single regression analysis, the results of the single regression models both support the rejection of the null hypothesis. For the regulatory cost variable in Table 8, $F(1,50) = 7.218$, $p = .010$, and for the operation cost variable in Table 9, $F(1,50) = 7.440$, $p = .009$

Table 8

Model Summary-Regulatory Costs

				Change statistics			
Model	R	R Square	Adjusted R Square	F Change	df1	df2	Sig. F Change
1	.355[a]	.126	.109	7.218	1	50	.010

Note. Predictors: Regulatory costs; dependent variable: Profitability-ROE.

Table 9

Model Summary-Operation Costs

				Change statistics			
Model	R	R Square	Adjusted R Square	F Change	df1	df2	Sig. F Change
1	.360[a]	.130	.112	7.440	1	50	.009

Note. Predictors: Operation costs; dependent variable: Profitability-ROE.

Regulatory compliance cost. The negative relationship between regulatory compliance cost and profitability is represented by the standardized beta (β=-.355) in Table 10. The negative coefficient of regulatory compliance cost (β=-.355), which means that for $100 increase in regulatory costs, profitability will decrease by $35.5. In other words, lowering the regulatory costs of credit unions would increase profitability.

Table 10

Coefficients-Regulatory Costs

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.191	.086		2.226	.031
	Regulatory costs	-1.020E-6	.000	-.355	-2.687	.010

Note. Dependent variable: Profitability-ROE.

Operation cost. In Table 11 below, the standardized coefficient of operation cost (β=-.360), which shows an inverse relationship between operation cost and profitability. The negative coefficient of operation cost (β=-.360) indicates that for $100 increase in operation costs, profitability will decrease by $36. Lowering operation costs of credit unions would increase profitability.

Table 11

Coefficients-Operation Costs

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.190	.084		2.245	.029
	Operation costs	-1.806E-7	.000	-.360	-2.728	.009

Note. Dependent variable: Profitability-ROE.

Analysis summary. My purpose in this study was to examine the relationship between regulatory cost, operation cost, and profitability. I used standard multiple linear regression to examine the significance of the relationship between the independent

variables (regulatory compliance cost and operation cost) and the dependent variable (profitability). Assumptions for multiple regression were assessed and violations were noted. The model was able to significantly predict profitability, F (2, 49) = 3.834, p = .028, R^2 =.135. The conclusion from this analysis was that regulatory compliance cost and operation cost are significantly associated with profitability.

Theoretical discussion of findings. Based on the results of data analysis, I rejected the null hypothesis that a significant relationship did not exist between regulatory compliance cost, operation cost, and profitability of credit unions. Therefore, I accepted the alternative hypothesis that a significant linear relationship did exist between regulatory compliance cost, operation cost, and profitability of credit unions. Regulatory compliance costs and operation costs significantly predicted profitability of credit unions. The findings in this study conformed to the assumptions of FIT. According to He et al. (2016), transaction cost, which is a principal of FIT, affect profitability of financial companies. The findings in this study were in alignment with the effect that regulations costs and operation costs could have on profitability of financial institutions (Calomiris, 2018). According to Calomiris, financial regulations could increase costs for financial institutions, which would lower profitability. Simpson (2017) concluded that increased compliance place constraints on profitability of financial institutions. Increased costs may decrease the number of financial institutions over time, limit profits, and make some financial firms less stable, therefore, sustaining financial challenges for small financial institutions could be more difficult (Simpson, 2017).

Application to Professional Practice

The results of this study can help managers of credit unions to understand the magnitude of the influence regulatory costs and operation costs have on profitability. Business practices may vary based on the type of industry. Based on findings of the regression model, regulatory costs and operation costs had a significant predictive relationship to profitability of credit unions. Managers of credit unions who understand the relationship between regulatory compliance costs, operation costs, and profitability may be able to implement effective and efficient operational procedures in their firms resulting in efficiency and lower transaction costs (Cuza, 2009). Additionally, understanding of the relationship between regulatory compliance costs, operation costs, and profitability could help regulators to design and assign compliance requirements that are effective and less difficult than the ones that currently exist (Eustache, 2017).

This study's findings could be of value to business leaders by enabling credit union management to improve business profitability. Understanding the relationship between regulatory compliance cost, operation cost, and profitability could assist management in decision-making and improving management's knowledge of possible future financial benefits (Eustache, 2017). The findings of this study could also enable credit union managers to improve businesses practices by helping management gain better knowledge of allocating valuable resources to increase profit and improve financial opportunities. As most financial institutions exist to generate profit, and managers' capabilities are necessary to improving profitability of financial organizations, the

findings of this study could motivate managers of credit unions to design and implement plans that could minimize costs related to compliance and operations, thereby improve profitability. According to Prager (2014), financial performances of organizations can help determine the level of compensations and incentives offered to employees and management. According to Abdullah et al. (2016), obligations to meet regulatory compliance are mainly viewed by business leaders as a financial burden and failing to comply with regulations is not an option, thereby, managers of credit unions need to develop and implement business practices that would reduce costs, thus, improve profitability. Iverson-Long (2014) found that many financial companies added significant staff to implement new regulations. Implementing new regulations could result in operational inefficiencies for financial institutions, which could increase costs of financial services and reduce profitability (Francis, 2013). The results of the study may effectively contribute to business practice by increasing knowledge about the connection between regulatory compliance costs, operation costs, and profitability of credit unions in the United States.

Implications for Social Change

The implications for positive social change include the potential for a better understanding, by managers, of the significance of the relationship between (regulatory compliance costs, operation costs), and profitability of credit unions. By applying the findings of this study and understanding the significance of the relationship between the variables, credit unions' managers could potentially implement policies that could

increase the efficiency of operations, which might improve profitability of credit unions and increase employment opportunities for individuals in local communities. The implications for positive social change for the employees, communities, organizations, and societies comprise the potential improvement in employees' welfare through having employment and growth opportunities by achieving operation efficacy. Managers of credit union could improve decision-making processes related to current and future operations and investments, which might increase profitability and contribute to the financial prosperity of employees, employees' families, communities, and the local economies. According to Lyon (2016), employees who are satisfied with the growth opportunities of their organizations have a positive attitude toward employers' well-being, remain long-term with the organization, and maintain positive relationships with their communities, families, organizations, and societies. Financially successful firms can benefit local communities by creating high paying jobs, thus improving families' financial positions, and help reduce the level of poverty (Lyon, 2016).

Recommendations for Action

It is important for business leaders to understand the significance of regulatory compliance costs and operation costs on profitability of financial institutions (Eustache, 2017). Credit unions' managers may use recommendations from this study to help develop effective policies and procedures that could improve profitability, which might lead to growth opportunities and increase wages for employees. Recommendations for actions to reduce the influence of regulatory compliance cost and operation cost on

profitability of financial institutions are (a) conduct internal training for employees on how to handle compliance requirements effectively, (b) business leaders can help determine financial transactions that require extra work to meet regulatory compliance, which could assist managers in allocating higher transaction costs to highly regulated financial products to selected locations, (c) assign certain locations that have higher revenue volumes to handle financial products that require extensive compliance as these locations could have more human resources to handle complicated compliance requirements, and, (d) conduct periodic compliance audits to make sure all locations are in compliance with the required regulations, which might eliminate or reduce compliance penalties, thereby improving profitability. Business leaders of financial institutions need to pay attention to the result of this study as the result of this study might be beneficial to managers of credit unions and other financial institutions' managers. Upon the completion of my doctoral degree, this study will be published in the ProQuest dissertation database. Additionally, I plan to publish this study in scholarly journals such as *Academy of Management Journal and Journal of Business Research.* Upon request, the results of his study will be made available to any financial institutions.

Recommendations for Further Research

In this study, I used data from 2010 to 2015. A recommendation for further research is to examine the relationship between regulatory compliance costs, operation costs, and profitability using data from other financial institutions such as banks over a recent and more extended period. The absence of independent data for regulatory

compliance costs in this study was a major factor in the violation of the multicollinearity assumption. Pallant (2016) stated that the existence of multicollinearity would jeopardize the regression model. Regulatory compliance costs are part of the operation of most financial institutions, thus, further research into the effect of regulatory compliance costs on operations could help to determine precise data for regulatory costs of financial institutions.

Conducting qualitative studies on the effect of regulatory compliance costs on the operation of financial institutions could help to generate independent data for regulatory compliance costs, which future researchers can use to conduct more quantitative research. This quantitative study examined the relationship between regulatory compliance costs, operation costs, and profitability; thus, further studies could examine the relationship between other independent variables and may consider regulatory compliance cost as a dependent variable for future studies. Independent variables that future researchers could use to predict regulatory compliance costs are (a) employees' retention rate, (b) employees' training, or (c) employees' wages. Enlarging the sample size in future research could also improve generalizability of results (Nuzzo, 2016).

Reflections

The research process during my doctoral journey has been exciting along with some challenges. During the proposal stage, I expected that there would be numerical data for regulatory compliance costs; however, no discrete data were available. To numerically measure regulatory costs, I had to rely on findings of previous studies,

which, based on a study's findings, showed that regulatory compliance cost could be calculated as a percentage of total non-interest expense. Prior to data collection, I thought that Section 3 of the study would be without challenges, but that was not the case. I did not expect any violations of assumptions during data analysis; however, the multicollinearity assumption was violated. One of the challenges was using SPSS effectively to calculate accurate findings. The results of the study met my expectations based on the theoretical framework. I preconceived data collection to be an easy process; however, data cleaning process and utilizing tools available to get data ready to be imported into SPSS were rigorous. One of my personal biases during this study was that I demonstrated an interest from the beginning of the doctoral program to conduct quantitative correlational study. Another personal bias was that I selected the population for my study from the state of Texas, where I live instead of choosing another state. While completing my doctoral study, I have gained valuable skills that would help me as a business owner and as scholar; for example, I improved time management skills which helped me balance my work, school, and family life. Time management skills helped me to cope with work demands and family obligations, while focused on long-term goals as my doctoral degree. Also, I have enhanced my writing skills tremendously as writing was a challenge for me when I started the doctoral program. During the research process, I increased my knowledge of using Microsoft Word and Excel as tools available in Word and Excel helped me to become more efficient during my doctoral study. I enhanced my research skills and I have extended my understanding of quantitative research.

Conclusion

Business leaders and policy makers should be mindful of the relationship between regulatory compliance costs, operation costs, and profitability of financial institutions, and focus on developing effective plans to help reduce these costs and improve financial performances. Increased regulatory and operation costs are financial burdens on small credit unions, which might have contributed to the decline in the number of small credit unions in the United States. To answer the research question for this study, I used multiple linear regression analysis. This study's findings indicated that regulatory compliance costs and operation costs were statistically significant in predicting profitability of credit unions. The model used in this study was able to significantly predict profitability of credit unions, $F(2, 49) = 3.834$, $p = .028$. Findings in this study align with FIT's concepts that methods of regulations and transaction costs affect profitability of financial institutions. Based on these findings, I rejected the null hypothesis that a significant relationship did not exist between regulatory compliance cost, operation cost, and profitability of credit unions; thereby, I accepted the alternative hypothesis that a significant linear relationship did exist. Data aligned with and supported previous research that the rise of regulatory and operation costs is significant to influence profitability of financial institutions. Financial institutions are main contributors to strong economies as growth opportunities in local communities in rural and urban areas involve the participation of a financial company. Paying attention to this study's findings could help credit union managers with assets under $10 million to improve profitability and

increase growth opportunities in local communities, which could improve lives of families by providing economic prosperity and growth opportunities.

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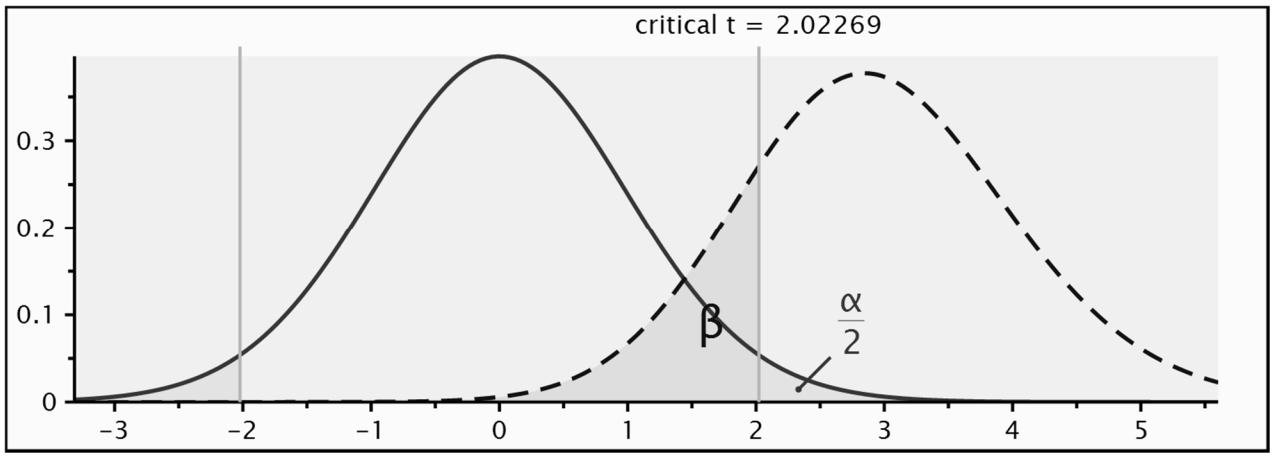
Appendix A: Determining the Sample Size

When using G*Power version 3.1.9 to compute the sample size, I used the following values to calculate the sample size α=0.05; power level(1-β) = 0.80; anticipated effect size =0.2. Based on using the mentioned values, the minimum sample size calculated by the G*Power was 42.



Input:	Tail(s)	= Two
	Effect size f²	= 0.2
	α err prob	= 0.05
	Power (1-β err prob)	= 0.80
	Number of predictors	= 2
Output:	Noncentrality parameter δ	= 2.8982753
	Critical t	= 2.0226909
	Df	= 39
	Total sample size	= 42
	Actual power	= 0.8068316