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The Effect of Regulations on the Bottom-Line of Traditional and Shadow Banks

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BS, Norfolk State University, 2004

Dissertation Submitted in Partial Fulfillment

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Abstract

Return on equity is often associated with prudent risk-taking and the attraction of new clients in advanced economies like the United States, where shadow banks are not regulated. Researchers have contended that freedom from regulation encourages risk-taking and earning of higher profits, but there is a lack of empirical evidence addressing this relationship. The purpose of this quantitative study was to investigate whether lack of regulations result in increased return on equity. The theoretical framework was regulatory arbitrage by Ricks M, Gennaioli N, Shleifer A, and Vishny R. The research question addressed the relationship between regulation, profit margin, leverage, asset turnover, economic condition, and strategy, and the bottom-line of banks (traditional and shadow) as measured by return on equity. A quasi-experimental design was used to examine data from 42 annual returns filed using Security and Exchange Commission (SEC) Form 10-K from U.S. banks with Standard Industrial Classification (SIC) Code 6021 and 6211. Multiple regression was used to analyze the data. Results indicated that regulation did not show any significant correlation with the bottom-line of banks as measured by return on equity. However, there was a significant correlation between the bottom-line banks and other independent variables including profit margin, leverage, and asset turnover. This study contributes to positive social change by assisting regulators and lawmakers in improving their roles in regulating traditional and shadow banks, thereby reducing the likelihood of crises in the U.S. banking system.

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Dedication

This dissertation is dedicated to my dear wife, Patience, and my children, Margaret and Jason. I could not have done this without you. Your unwavering support was the reason I worked harder to complete this doctoral study.

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Chapter 1: Introduction to the Study

In the past half century, risk management in banking (issuing short-term informal documents agreeing to a debt and investing the funds raised in longer term financial assets) has transitioned from keeping a lot of reserves against future losses to securitization (Ricks, 2014). Through securitization, management at banks can diversify idiosyncratic risk and concentrate on systematic risk (Gennaioli, Shleifer, & Vishny, 2013). The best part of this transition is that with securitization, management can expand their balance sheet by trading an almost riskless debt (Claessens, S., Pozar, Ratnovski, & Singh, 2012).

Securitization has been a major force in development of the industrialized world. In the case of the United States, securitization by investment banks enabled financing of major projects (Tarhan, 2014). Torpeano (2011) described securitization as enabling traditional banks' assets to be more liquid because they can easily be converted into cash. Through securitization, management at banks have enough reserves to make more loans and thus fulfil one of the functions of banking: making loans to people and businesses who need them. As a result, banking has become a gigantic source of political and financial power especially in the developed economies of Europe and North America. Tarhan (2014) labelled banking, especially shadow banking, as the catalyst for both good and bad things that happen in an economy.

Securitization was introduced by nonbank entities that operate outside the traditional banking system and are collectively called shadow banks (Gennaioli et al., 2013). Initially, securitization was set up as a means for banks to transfer risks from the

banking sector to outside entities, thereby spreading the risks across the industry (Acharya, Schnabl, & Suarez, 2013). The idea is that if banks (in this case traditional banks) can spread the risk associated with their investments to other sectors, then there will be a need for reduced regulatory capital requirements and more funds available to these banks for investments. However, in the case of shadow banks, management still keep securitized assets on their balance sheets because they have little or no reserve requirements to worry about (Acharya et al., 2013).

Shadow banking was the result of attempts made to expand credit and bolster economic growth, and in the process spread the risk so there are almost no requirements to keep reserves (Ricks, 2011). According to Acharya et al. (2013), shadow banks are conduits that used to purchase medium to long-term assets by financing them with short-term asset-backed commercial paper. By this action, shadow banking is now being used to perform the same credit intermediation role as traditional banks except that this function is performed in the shadow of traditional banks and without legal supervision (Acharya et al., 2013). The lack of supervision means lack of statutory legal reserves, an added advantage that allows regulatory arbitrage and enables shadow banks to pay higher interest on deposits when compared to traditional banks (Ricks, 2011). Despite lack of reserves, the shadow banking system has led to the development of a more robust system of securities market that enables an easier movement of funds geographically and also a source for raising capital agency (Blinder, 2012).

Some scholars attributed the rise of shadow banking to new capital requirements under the Basel II framework (Bordo, Redish, & Rockoff, 2015) . The argument made

was that shadow banking arose because regulators introduced more and more complex capital requirements for traditional banks (Bouveret, 2011). This action incentivized financial institutions (especially traditional banks) and led to the movement of some financial activities outside the traditional banking system. The direct result was the growing importance of shadow banks because the industry views more and more complex rules not doing much but encouraging regulatory arbitrage (Bouveret, 2013).

The Congress of the United States made this situation worse by making changes to the financial system during the past few decades that resulted in the explosion of institutional investing from companies with lots of cash for short-term lending (Gorton & Metrick, 2010). Naturally, these new investors were quickly attracted to the high-interest deposit accounts being offered by shadow banks. As a result, the shadow banking system (even without deposit protections) became very famous. The shadow banking system also offers a less stringent reporting requirement and no limit of trading, something that is considered the crown jewel of investors (Rixen, 2013). With shadow banking commanding assets close to $15 trillion in 2011, if the economy of the United States slows down, then investors will lose and their losses could bring down the economy as occurred during the 2008 recession (Ricks, 2014). One way of limiting this possibility is to determine whether shadow banks perform differently with fewer regulations. Therefore, in this study I examined the relationship between regulations and the bottom-line of banks as measured by the return on equity. In Chapter 1, I present the background, problem statement, purpose of the study, research questions and hypothesis, theoretical

framework, nature of the study, definitions, assumptions, scope and delimitations, limitations, significance of the study, and summary.

Background of the Study

The government, with its enormous power, can create or hurt industries through regulations (Stigler, 1971). There are also factors such as political pressure and industry lobbying that can sway regulations. In an open economy, according to Singer (2004), all managers at firms will find ways to maximize their profits whereas citizen voters who are the clients of these companies demand financial stability; these dual factors are what a legislative policy must address. It is the duty of the government to protect its citizens from all crises, especially financial crisis. That is what prior regulations tried to do, and there is always the danger of overreaching.

Throughout the history of the United States, the government has performed this balancing act as needed. This occurred during the late 1970s to early 1980s when the Congress implemented complete removal of statutes put in place after the great depression to prevent its recurrence (Gerding, 2011). This action is regarded at the last catalyst the caused the full development of the shadow banking system (Gorton, 2010). Gorton (2010) and Bouveret (2011) presented a range of hypotheses in trying to explain the development of the shadow banking system. Among them were increased competition from nonbanks, decreased regulations for new banks, financial innovations from new technologies, and rehypothecation (a process of allowing collateral posted by hedge funds to be used as collateral by prime brokers as their own funding). In the United States, the rise in shadow banking has been attributed to the phasing out of the interest rate ceiling

and relaxed rules for trading derivatives such as credit default swaps (CDS) and securitization (Gorton, 2010). This lack of regulation, according to Rixen (2013), is an important incentive for shadow banks because they can use various regulatory arbitrage opportunities to realize greater returns. In addition, shadow banks enjoy unrestricted possibilities of leverage investment (Rixen, 2013). This lack of regulation prompted Varialle (2012) to argue that shadow banking activities should be exposed to similar financial risks as traditional banks; however, shadow banks have not been subjected to a comparable regulatory regime.

Bouveret (2011) attributed the rise of shadow banking to securitization alone. Bouveret argued that securitization enabled banks and nonbanks such as finance companies to move loans out of their balance sheet resulting in lower capital requirements under the Basel II framework. According to Rixen (2013), lessons learned from prior financial crises indicated that market participants always take advantage of any gaps in the existing regulations to realize profits. Rixen supported the idea that the removal of the depression-era statutes was done to connect commercial and household borrowers to the capital markets to facilitate liquidity, a point also made by Gerding (2011). The repeal of these statutes opened the door to shadow banking, a financial intermediation that is routed outside of the balance sheets of regulated traditional banks (Gerding, 2011; Rixen, 2013). It is therefore not surprising that shadow banking is largely made up of nondepository banks such as hedge funds and investment banks whose primary function is credit transformation, like traditional banks. Shadow banks are therefore unregulated banks that deal with uninsured commercial paper that is

backstopped by liquidity lines from traditional banks (Bouveret, 2011). In other words, shadow banks perform the same functions as traditional banks but without the supervision. Kessler and Wilhelm (2013) likened the rise of shadow banking to financialization, which is the linkage of authority and legitimacy of financial markets.

The shadow banking system has the added advantage of risk diversification through securitization. It is this securitization that is supposed to be the solution to liquidity issues associated with the traditional banking system. The reason for this assumption, according Rixen (2013), is that securitization in itself can lead to an efficient allocation of risk. However, the shadow banking system experienced the same liquidity and solvency crises as traditional banks, causing massive economic damage during the 2008 recession (Gerding, 2011). The reason for this, according to Krugman (2011), is that even though shadow banks deal with money-market funds, repurchase agreements, and so on, these instruments function like deposits but without safeguards such as insurance, and therefore are not less risky than traditional banks.

Shadow banking is often characterized by securitization and extensive use of leverage (Bouveret, 2011). This means that assets of shadow banks could be used as a source of revenue and at the same time as collateral (Bouveret, 2011). As a result, a collateralized business cycle is developed whereby when the price of assets falls, borrowers are not able to pay back loans and lenders lose financial wealth (Bouveret, 2011). As a source of revenue, assets of shadow banking are securitized and the funds used to do more business.

The rise of shadow banking was approached differently by other prior researchers. Bordo, Redish, and Rockoff (2015) compared the banking systems of Canada and the United States because Canada did not experience the same issues with shadow banking as the United States. Shadow banking has been part of the traditional banking system in Canada because the banking charter has been part of the Canadian constitution; all banks are regulated by one national agency, unlike in the United States where states have jurisdiction over banking (Bordo et al., 2015). However, Bordo et. al (2015) pointed out that the stability provided in the banking system in Canada also came with a cost: slower innovation in emerging sectors and the production of services at monopolistic prices. On the other hand, the expanded shadow banking system in the United States provided the much needed capital for long-term development despite being unregulated (Bordo et al., 2015).

Yardan (2014) approached shadowing in a different way by labelling it as an extrabanking activity. This was because of the role shadow banks played before, during, and after the 2008 financial crisis. Yardan (2014) mentioned that both traditional and shadow banks became important sources of power as a result of weak regulations and deregulation in the United States and the United Kingdom. Yardan said that lobbyists from both of these entities lobbied and influenced regulators to the extent of writing their own rules. If that was not enough, shadow banks were further exempted from even the weak regulations that govern banking (Yardan, 2014). Varriale (2012) characterized shadow banking as the traditional banking system that get finances from short-term funding, which according to many experts is prone to risks of sudden and massive

withdrawals of funds if care is not taken. This view is in contrast to others who argued that the low interest policy by traditional banks may have given incentives to development of shadow banking (Calvo, 2012). However, Varriale (2012) was quick to point out that shadow banking brings enhanced transparency requirements, something that is foreign to traditional banks.

Traditional banking, according Yardan (2014), is the result of necessity as depositors and borrowers need an intermediary to be a custodian of information and at the same bridge the gap between their different maturity levels in the financial instruments. Management from these banks performed these two functions very well, and later they provided guarantees for trading parties and safeguards for future transactions (Yardan, 2014). On the other hand, shadow banking is noted for maturity mismatch, a situation in which there is reliance on short-term funding for long-term investments. However, most of the short-term instruments used for shadow banking include commercial paper and repurchase agreements that are very liquid.

Before the dawn of shadow banking, depositors and borrowers met at a single point where savers entrusted their money to traditional banks in the form of deposits in return for small interests, and the banks used these deposits to extend loans to borrowers (Adrian, Ashcraft, Boesky & Pozsar, 2013). Yardan (2014) described traditional banking as individuals or firms making deposits at banks and receiving guarantees for the funds deposited. Yardan also stated that traditional banks then lend these funds at a higher rate to borrowers and receive mortgages or promissory notes as collateral. With this practice, management at traditional banks make a profit by the spread between the interest rate

paid to depositors and the interest rate charged to borrowers (Luttrell, Rosenblum, & Thies, 2012). According to Luttrell et al., this arrangement is possible because management at traditional banks issue safe and demandable deposits backed by the federal deposit insurance. The ability of traditional banks to raise funds has opened the era of investment banking especially in the developed economies such as United States and Western Europe. As investment banking became popular, it became synonymous with shadow banking because traditional banks are restricted by law from issuing risky securities (Yardan, 2014).

One of the good things about traditional banking is the use of insurance. According to Ricks (2012), insurance was set up to protect depositors but also came with a group of privileges and restrictions such as access to central bank liquidity and less risk-taking. That is not the case for shadow banks. The idea behind shadow banking is that it will expand credit and bolster economic growth while spreading the risks involved. Shadow banking, according to Torpeano (2011), is a revolutionary financial innovation and needs to be encouraged because consumers benefit immediately from the extra money they get from higher interest on their deposits. As such, shadow banks are excluded from bank liabilities and are given very little reserve requirements against potential losses (Risks, 2011).This is the main reason Shadow banking is considered as a private process without any interference from regulators (Yardan, 2014). It is therefore not surprising that Shadow banking is characterized by short-term funds with primary investors as private institutions and corporations that have large amounts of idle funds for investments (Yardan, 2014).

Problem Statement

A primary goal of regulations imposed on traditional banks is to protect average investors from loss of their savings and investments from unnecessary risk-taking while earning interest (Rixen, 2013). However, interest on deposits at traditional banks is close to zero percent mainly due to these restrictions on taking excessive risks (Rixen, 2013). In some cases, management at new banks are not allowed to pay a dividend rate higher than the prevailing rate in an effort to attract more deposit customers (Stinger, 1971). In an attempt to connect commercial and household borrowers to the capital markets, the Congress of the United States made changes to the financial system during the last 40 years, and that resulted in competition from nonbanks (Gerding, 2011). With the explosion of institutional investing from companies such as pension funds, finance companies, and mutual funds that happened to be sitting on mountains of cash for short-term deposits and needing checking accounts, a shift toward more interest on deposits and more risk-taking seemed apparent (Gorton & Metrick, 2010). Despite this change in banks' use customer deposits and fewer restrictions from regulators, the fact remains that a transition has been occurring in the institutional investors' choice of banks, which has led to the rise of shadow banks. Despite all these added benefits Bordo et al. (2015) warned that there may be overreliance on shadow banks at the lender of last resort to finance investments because these institutions do not hold reserves needed to protect their depositors.

The increased reliance on shadow banking is an indication of good profit business that is subjected to minimal constraint (Luttrell et al., 2012). With reports depicting the

rise of shadow banks from less than $1 billion in 1952 to close to $20 trillion in 2007 before receding to $15 trillion in 2011, if the U.S. economy slows down then investors will lose and their losses could bring down the economy, which occurred in the 2008 recession (Ricks, 2011). One way of limiting this possibility is to determine whether shadow banks perform differently with fewer regulations. Therefore, the problem addressed in this study was to investigate whether traditional banks did not earn enough return on equity due to too many regulations. Additionally, I also explored whether shadow banks attract more investors because they pay higher interest on deposits due to their ability to take more risks.

Purpose of the Study

A safe return on investment is associated with prudent risk-taking and the attraction of new clients and investors (Rixen, 2013). This statement is true about banks, especially shadow banks, which are not regulated and are therefore free to take maximum risk. Researchers have long theorized that freedom from regulation encourages risk-taking that is essential for capitalism to be successful; however, there is a paucity of empirical evidence that addresses this relationship (Gorton & Metrick, 2010). Therefore, the purpose of this quasi-experimental study was to examine the relationship between regulations and the return on equity, controlling for variables such as profit margin, leverage, asset turnover, economic conditions, and the type of banking system in the United States. The independent variable regulation was defined as a key driver of return on equity. The dependent variable return on equity was defined as the bottom-line of traditional and shadow banks, and the intervening variables profit margin, leverage, asset

turnover, economic conditions, and banking system were statistically controlled in the study. I also controlled the effects of other predictors by taking away their portion of variance in the dependent variable.

In this study, I addressed the gap in the existing literature regarding the effects of regulations on the bottom-line of traditional and shadow banks. I used a quasi-experimental design to examine sample units drawn from a population of 42 banks (21 traditional banks and 21 shadow banks) located in the United States. I examined the annual returns required by law to be filed with regulatory authorities. Because shadow banking assets are more than double those of traditional banking, the risk posed to the U.S. economy is real. As was seen in the 2008 recession, lawmakers will be eager to avoid the unpopular action of using taxpayer money to bail out private institutions again. This could lead to an even playing field for traditional and shadow banks by demanding a safety net for all customers.

Research Question(s) and Hypotheses

I chose a quantitative approach because a quantitative study is used for situations in which an investigator is interested in finding out if a particular action influences an outcome. According to Denzin and Lincoln (2005), a quantitative method is used to test the relationship between variables, which was the aim of this study. One way to find a need for both systems of banking to be treated the same and to coexist was to investigate whether too many regulations are helping or hurting traditional banks.

The research problem generated the following question: What is the relationship between regulation, profit margin, leverage, asset turnover, economic condition, and

strategy, and bottom-line of banks (traditional and shadow) as measured by return on equity? My null hypothesis for this research question asserted that there is no relationship between regulation, profit margin, leverage, asset turnover, economic condition, and banking system, and return on equity for banks.

H_o: There is no relationship between return on equity earned by banks and regulation, profit margin, leverage, asset turnover, economic conditions, and banking system.

H_a: There is a relationship between return on equity earned by banks and regulation, profit margin, leverage, asset turnover, economic conditions, and banking system.

The statistical method used to test this hypothesis was multiple regression. I chose this method because it was best suited for analyzing the collective and individual influence of two or more independent variables on a dependent variable (Azcel, 2012). With multiple regression, I could provide determine whether the independent variables combined were significantly related to or predictive of my dependent variable. I could also examine how much variance in my dependent variable was explained by my independent variables. In addition, I could determine whether each of my independent variable was significantly related to my dependent variable when controlling for other independent predictors. Finally, I could determine which of my independent variables was the strongest predictor of my dependent variable.

The multiple regression statistical technique was available in my statistical software tool SPSS. Perhaps the best thing about the multiple regression technique is that

the result has the following useful statistics: correlation coefficient (R), *R*-square, *F* test, and *t* test. The *R* is a measure of the correlation between all the independents variables combined and the dependent variable, whereas the *R*-square is percentage of variance explained in the dependent variable (Azcel, 2012). The *R*-square is also a measure of effect size in a multiple regression, which is the measure of the practical significance of independent predictors to the dependent variable, in my case return on equity (Urdan, 2010).

The *F* test in multiple regression is used to test multiple correlations, and the *t* test is used to test the regression coefficients. The *F* value produced in a multiple regression with a corresponding *p* value also conveys the statistical significance of the model outputs (Urdan, 2010). The regression coefficients of the model are also displayed, which is used to get a regression equation. Each regression coefficient shows the strength of independent variable to the dependent variable while controlling for other independent variables. The regression output also has standardized regression coefficients which are used to compare the predictive power of each independent variable to the dependent variable (Urdan, 2010).

The independent variables that were categorical were turned into dummy variables. Dummy coding is a way of representing groups by zeros and ones (Field, 2012). The good thing about dummy variables is that they are nonordered; therefore, coding of one or zero does not mean one group is higher than the other. As a result, I coded the following independent variables as dummies:

Regulation (Regulated = 0; Not Regulated = 1).

Banking system (Traditional = 0; Shadow =1).

Economic condition (Good = 0; Bad=1)

Mathematically, the regression model is shown in Equation 1 below:

$$Y_i = \beta_0 + \beta_1 X_{i1} + \ldots\ldots\ldots\ldots \beta_6 X_{i6} + \varepsilon_i \quad (1)$$

Where,

Y_i is return on equity for company *i*,

X_{i1} is the regulation of company *i*,

X_{i2} is the profit margin of company *i*,

X_{i3} is the leverage of company *i*,

X_{i3} is the asset turnover of company *i*,

X_{i4} is the economic condition of company *i*,

X_{i5} is the banking system of company *i*,

ε_i is the error term of company *i*.

I conducted complete and thorough data cleaning and manipulation of the continuous variables. Mean substitution technique was used for missing values as needed.

Theoretical Foundation

In this section, I describe prior theories underlying indebtedness in banking in general and compare three theories underlying shadow banking. Prior theories about banking were about debt and instability. The earliest work on this began with Fisher (1933) addressing debt inflation. In the debt inflation theory, Fisher hypothesized that overdebtedness may lead to debt liquidation and distress selling that could result in lower asset price and output. This could potentially bring pessimism and in extreme cases a run

on the banks if care is not taken about how much debt an institution could sustain. Minsky (1964) developed the financial instability theory about how good feelings about the economy can cause both lenders and bowers to be confident that their investments will succeed, resulting in massive indebtedness relative to income and financial assets. In this scenario, the economy moves from borrowers whose investment can cover interest and principal to borrowers who can cover on interest. Therefore, care must be taken in using financial innovations.

Early research into shadow banking was based upon the idea that a lack of supervision and relaxed regulations encourage excessive risk-taking and earning of very high yield (Ricks, 2011). This idea was also confirmed by other researchers who argued that because shadow banks are not under strict supervision, they have the freedom to take maximum risk, and if this pays off then they can pay high rewards (Adrian et al., 2013). This is considered an antidote to the standard theory that implies that the traditional banking system acts in an oligopolistic style in which banking implies higher cost and limited supply of services when compared to shadow banking agency (Bordo et al., 2015).

The first theory, which is commonly referred to as *informational symmetry*, is used to explain why all investors are either aware or not aware of their potential payoffs when they make investment decisions (Gennaioli et al., 2013). As such, most investors are not afraid of losing their investments (Dang, Gorton, & Holmstrom, 2009; De Marzo, 2005; De Marzo & Duffie, 1999; Gorton & Pennachi, 1990). This confidence in the market is possible because of actions such as securitization, which is the key to risk

reallocation between risk-neutral and risk-averse (Gennaioli et al., 2013). As applied to my study, this theory holds that all risk will be diversified, and there is a real probability of earning higher returns. The greater a firm's flexibility to take a risk, the higher the returns earned on its investments.

The second theory, which is commonly referred to as *regulatory arbitrage*, is used to explain securitization with little or no risk transfer. According to Gennaioli et al. (2013), this theory is used to explain risk retention by highlighting the role of distortionary financial regulations in promoting securitization without risk transfer. The idea is that, with the aid of securitization, balance sheet assets are turned to highly rated securities and are sustaining of higher leverage (Gennaioli et al., 2013). As applied to my study, this theory holds that distortionary financial regulations help in promoting securitization without risk transfer, and there is a real probability of earning higher returns because of the extra flexibility (Acharya et al., 2013).

The third theory is often called the *theory of regulation*, and it is based on the idea that the primary purposes of regulations are protection and benefit of the public at large or some large unit of the public (Stigler, 1971). As such, certain regulations have net effects that can be damaging or beneficial to different elements of society. With regard to my study, both sides of the net impact of regulations were tested.

Nature of the Study

The quantitative study's design was quasi-experimental. Specifically, I chose a control series design. The reason for choosing this particular design was because it combined the time-series method with the collection of similar data into nonequivalent

comparison groups to control for any history and test effects (Frankfort-Nachmias & Nachmias, 2008). The dependent variable was average annual return on equity, and the independent variables were regulation, profit margin, leverage, asset turnover, economic conditions, and strategy. I used the multiple regression technique as my statistical tool. I chose this statistical model because I was testing the relationship between the average return on equity of other independent variables.

Definitions

The following terms were used in this study. Many of these definitions can be found at the website of the Federal Reserve Banks.

Asset-backed commercial paper: A short-term investment vehicle with a maturity that is typically between 90 and 180 days (Adrian et al., 2013).

Basel II: A set of banking regulations put forth by the Basel Committee on Bank Supervision, which regulates finance and banking internationally (Gorton & Metrick, 2010).

Conduit: A special purpose vehicle set up to purchase and hold a variety of asset sellers (Gorton & Metrick, 2010).

Diversification: Investing in other types of assets or businesses that are different from one's own business in order to spread risk (Ricks, 2011).

Credit default swap: A swap designed to transfer credit exposure of fixed income products between willing parties (Gorton & Metrick, 2010).

Financial crisis: A situation in which the value of financial institutions or assets drops rapidly. It is associated with a panic or a run on the banks in which investors sell off assets or withdraw money (Luttrell et al., 2012).

Financial regulation: A rule or set of rules that govern financial dealings.

Financial Structure: A predetermined format that financial instruments follow.

Idiosyncratic risk: Risk that is specific to an asset or a small group of assets (Acharya et al., 2013).

Independent samples t *test*: A test that is used to determine whether two groups have different averages (Urdan, 2010).

Lobbying: The act of attempting to influence business and government leaders to create legislation or conduct an activity that will help a particular organization.

Offshore financial centers (OFC): Center business units that are located outside geographical boundaries to avoid tax obligations (Acharya et al., 2013).

Oligopolistic: A situation in which a particular market is controlled by a small group of firms (Noel & Segupta, 2011).

Over-the-counter: A security traded in some context other than a formal exchange (Gorton & Metrick, 2010).

Rehypothecation: A practice by banks and brokers of using, for their own purposes, assets that have been posted as collateral by their clients.

Reserve requirement: A requirement regarding the number of funds that banks must hold in reserve against deposits made by their customers (Acharya, Schnabl & Suarez, 2013).

Risk-management: Identification of risk and taking action to reduce or eliminate its impact (Noel & Segupta, 2011).

Securitization: The process of transforming liquid assets into security instruments (Acharya et al., 2013).

Shadow banking: A financial intermediation that is routed outside of the balance sheets of regulated traditional banks.

Special purpose vehicle: A subsidiary of a company whose operations are limited to the acquisition and financing of special assets.

Standard Error: The standard deviation of various sample statistics such as the mean, median, and so on. It is used to measure the accuracy with which a sample represents a population (Azcel, 2012).

Statistically significant: The likelihood that a result or relationship is caused by something other than random chance. Statistical hypothesis testing is normally employed to determine whether a result is statistically significant (Azcel, 2012).

Systemic risk: Risk that is inherent to the entire market or an entire market segment (Luttrell et al., 2012).

Assumptions

The framework of this study was based on the synthesis of numerous works in banking and finance. I assumed that securitization was the only means of diversifying risk among banks. Therefore, I recognized the scope of this study would be limited to the banks involved in securitization. The scope of this study was further limited by well-developed financial markets because securitization is a new financial concept.

Additionally, I also assumed that regulations were designed for traditional banks only instead of the financial firms and markets.

Scope and Delimitations

The purpose of this study was to examine the relationship between regulations and the return on equity, controlling for variables profit margin, leverage, asset turnover, economic conditions, and strategy for both traditional and shadow banks in the United States. Other independent variables were controlled by making them have similar values between the two banks. I recognized it may have been difficult to have the same exact values for these other independent variables.

This study was not intended to address the effects of regulations on any other financial ratio. Return on equity best reflected the bottom-line of banks in the context of the problem under study. The scope of the study was to examine the effects of regulations on the bottom-line of banks in the United States. Banking data in the United States were the only source of information for the study. The reason for this is because there are laws in the United States that required banks to file annual returns of their business operations. I did not consider collecting banking data from other countries because annual filing requirements might be different.

This study could not be reproduced in countries where there is no free and readily available public data. Private data are housed and safeguarded by a reputable government agency in United States. In addition, because the United States has established laws that govern annual fillings for a long time, there is an abundance of good clean secondary data.

The data were also limited to the top performing banks for 5 years prior 2008. I limited the scope of this data to this time period because the 2008 recession involved both traditional and shadow banks. Additionally, most of the shadow banks that were considered were also incorporated offshore. This arrangement was to make sure they operated under the privileges that existed in those areas. Lastly, I limited the study to securitization as the only risk diversification tool. Other forms of risk diversification were not be considered.

Limitations

There was a significant limitation in replicating the study using data after 2008. The season for this is because there were new laws passed by Congress after the 2008 financial crisis. The most notable one was the Dodd-Frank Wall Street Reform and Consumer Protection Act that brought most shadow banks under the same regulations as traditional banks. Another significant challenge to this study was bank mergers and acquisitions. During the period of the study, there were mergers between top traditional banks; as a result, getting good and reliable historical data was difficult. Lastly, some of the shadow banks that were studied were offshore units of traditional banks. As such, there was a danger in comparing the same banks from the two sample groups.

Significance of the Study

Shadow banking refers to a large segment of financial intermediation that is routed outside of the balance sheets of regulated traditional banks. The size of shadow banks in the United States was $20 trillion at its peak in 2009, which was more than double that of traditional banks. Given the size and role of banks in the 2008 financial

crisis, it was useful for policymakers to understand the current dimensions of credit intermediary institutions in the modern economy. This study could contribute to the existing knowledge in understanding how banking has changed. Specifically, it may give policymakers an insight into the implications of their policies (Noel & Segupta, 2011). In addition, the study may provide the following benefits:

- provide policymakers with evidence of inherent risks in maturity and liquidity transformations,
- provide evidence as to the consequences of policies and laws made by the government,
- provide evidence as to unequal treatments of banks,
- educate the average investor as to the dynamics of risk and rewards when it comes to investing, and
- educate the taxpayer on the risk of bailing out private and public institutions.

Significance to Theory

The lack of government oversight is often cited as an incentive for the rise of shadow banks. This study advanced the argument that when banks are allowed the freedom to operate, all information about the underlying risk will be diversified. This diversification leads to risk-sharing that could eliminate the need for panic should things go sour. As Stinger (1971) stated, the theory of economic regulation is very difficult to understand because there will always be people who benefit and others who bear the burdens of regulation. I hoped to improve on the understanding of this theory.

Significance to Practice

Knowing the variance in the bottom-line of traditional and shadow banks may provide policymakers with evidence of the outcome of their decision to open credit intermediation market to nonbanks. If it turned out that regulatory burdens were preventing the traditional banking sector from flourishing as the shadow banking sector did, then policymakers might consider leveling the playing field for all banks. If this is done, it may lead to a better regulated banking system and may also prevent tax revenue losses due to offshore incorporations (Rixen, 2013).

Significance to Social Change

The outcome of this study may encourage policymakers to ease regulatory restrictions on traditional banks. If this is done, it can put pressure on traditional banks to pay higher interest on deposits just like shadow banks if they want their business. These extra funds received could then be used to contribute in other ways to the economy.

Summary and Transition

In Chapter 1, I described two types of banking. I examined the role of traditional and shadow banking in the broader economy. I also examined the role of the regulators in trying to open the financial markets to everyone through expansion of credit remediation entities. I described the role of regulations on the bottom-line of both traditional and shadow banks. The theoretical basis of this study was that idea that a lack of supervision and relaxed regulations encourage excessive risk-taking and earning of very high yields. I also described the type of research I conducted. I pointed out this study was designed to test the effectiveness of regulation in an effort to protect citizen investors and at the same

time maintain a sound and even field banking system. The chapter included a description of how data were obtained for this study as well as the limitations of the study. Finally, I described the significance of this study and the implications for positive social change.

In Chapter 2, I provided an expanded literature review underlying the need for this study. I examine the relationship between regulations and the bottom-line of banks. My conceptual framework came directly from the synthesis of major works from the literature. In chapter 3, I explained why quantitative study is the most appropriate method to analyze the defined problem in this study. In addition, I provided the rationale for selecting the independent multiple regression methodology as the most useful statistical tool to the effect of regulations on return on equity. In chapter 4, I presented the results of this quantitative study. Lastly in chapter 5, I discussed the implications of this research and its contribution to social change and the body of the scholarly work in the banking sector.

Chapter 2: Literature Review

The purpose of this quantitative study was to investigate whether the lack of regulation results in increased return on equity. To achieve this aim, I reviewed previous research and major literature related to the problem statement, the research questions, and the hypothesis presented in Chapter 1. I followed the contents of this literature review in the concept map shown in Figure 1. The map is divided into two main parts. From the map, it can be noted the both traditional and shadow banks performed the same credit intermediation. As such, the first section under credit intermediation covers the research on traditional banking while the second covers shadow banking.

Each of the two main titles has subtitles under them. Under the traditional banking system, I considered the literature related to set-up, regulations, the role of the government, and the role of government insurance. Under the shadow banking system, I considered literature on its rapid growth, the effect of regulations, the roles of the government, and the role of private insurance.

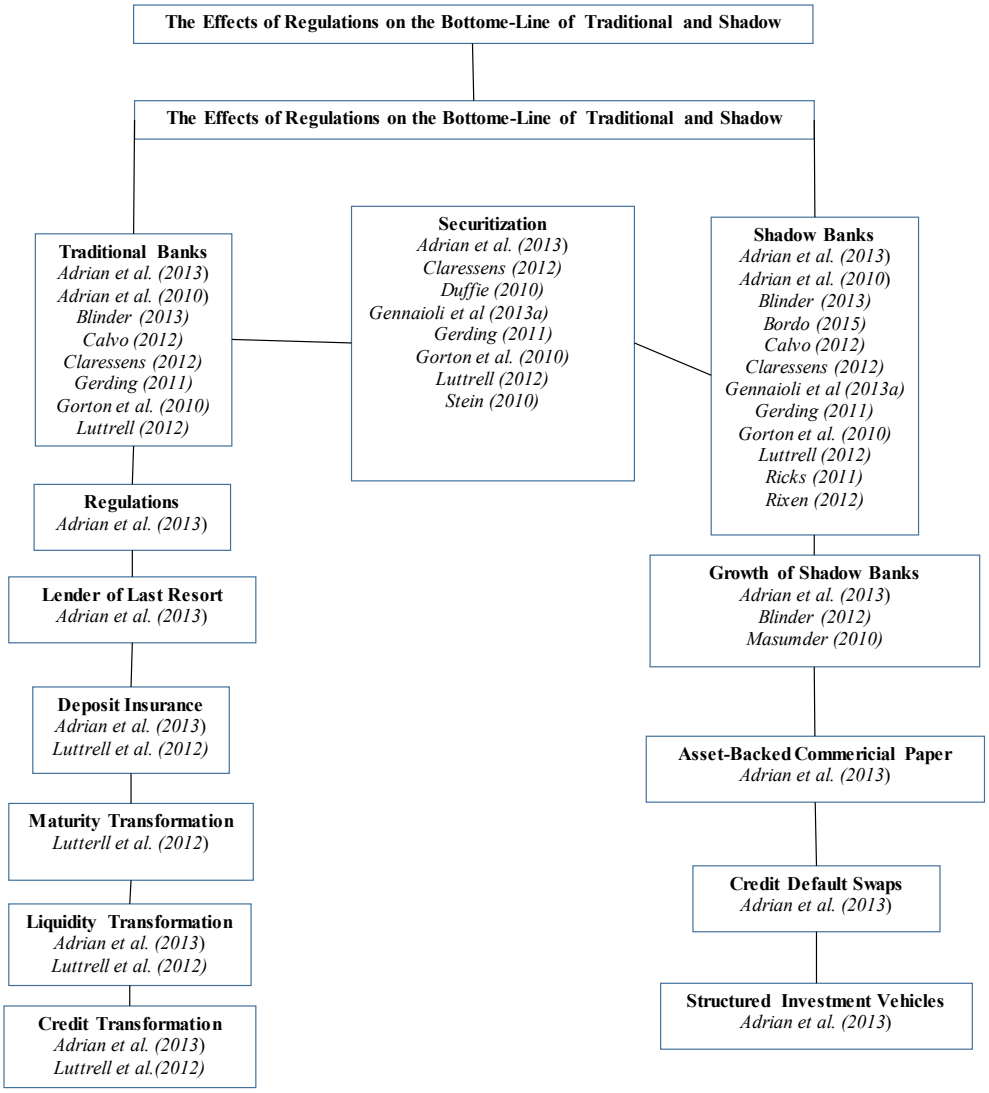

Figure 1.The literature review map of the effects of regulations on banks.

Literature Search Strategy

When formulating my research topic, purpose and problem statements, I relied heavily on Walden University's library. I used databases including Business Source Complete, ABI Complete, and SAGE Premier. From each database, I focused on peer-

reviewed articles related to my research topic. In addition, I used Google Scholar and Harvard Business Review as my other resources to complement those of the Walden University. The ability to link to libraries from Google Scholar came in handy. The key search terms I used were *banking*, *traditional banking*, *shadow banking*, *shadow banks*, *traditional banks*, *financial crisis*, *banking crisis*, *origin of banks*, *banking and regulation*, *financial banking*, *rise and growth of banking*, *what is new in banking*, *financial crises*, *history of banking*, *private banking*, *commercial banking*, and *traditional versus shadow banks*.

Scope of Literature Reviewed

Most of the journal articles I used were published between 2010 and 2015. This 6-year span was in compliance with the requirements of Walden University for doctoral students to make sure at least 85% of their references are within the past 5 years. I continued to search journals related to my topic until the study was complete.

I used seminal papers in the finance literature related to banking, investment banking, banking and regulation, and shadow banking. Most of the current peer reviewed articles that fell within the 5-year period were cited. Among them but not limited to were Acharya et al. (2013), Bordo et al. (2015), Bouveret (2011), Calvo (2012), Gennaioli (2012), Kessler (2012), Masunder (2010), Rixen (2013), and Singer (2012). Among the seminal papers that were used were Adrian et al. (2013), Adrian et al. (2010), Gerding (2011), Gorton and Metrick (2010), Krugman (2011), Luttrell et al. (2012), Ricks (2011), Stigler (1971), Tropeano (2011), etc.

Literature Review

Financial Intermediation

The financial intermediation and credit intermediation process provides savers with information and convenience of risk economies with spending efforts and money in monitoring borrowers (Adrian & Ashcraft, 2012). This process is mostly done through three mediums: direct lending, which is nonintermediated; intermediated through traditional banking; and intermediated through shadow banking (Luttrel et al., 2012). The need for financial intermediation came about when households bought securities issued by intermediaries who in turn lent the money to borrowers (Gorton & Winton, 2012). Financial intermediaries perform the duty of monitors or custodians for the depositors and the lenders. Tahzan (2012) attributed the rise of financial intermediation to two reasons: the lack of appropriate information sharing between lenders and borrowers, and lenders and borrowers having different liquidity and maturity inclinations. Traditional banks were the first to provide solutions to the aforementioned problems. Traditional banks succeeded in this endeavor beyond expectations and attracted more business by offering guarantees to trading partners and also safeguards for future transactions.

In direct lending, individuals or corporations who are lenders or borrowers engage each other directly without an intermediary. Every communication or agreement between the two parties takes place directly. In intermediated lending via traditional banking, the banks take deposits from their clients (who are the lenders) and in turn make loans to consumers and other business who are the borrowers. The deposits are a valuable and convenient form of debt to the institution because they can be used for other purposes. In

addition, depositors have a safe and convenient place to store their money without worrying about whether it is going to be there (Gerding, 2011).

According to Luttrel et al. (2012), deposits have three unique features that make them attractive to depositors. First, the depositors have a legal right to withdraw their money any time without notice. Second, the depositors can withdraw their money at any time without or penalty. Third, depositors can withdraw their money without any interest rate risk. For the bank receiving the deposits, this is essentially free money because they have an obligation to pay only a very small interest. The ability of depositors to withdraw their money at any time is a liquidity advantage but also a cheap source of funding for banks. With the added advantage of paying very little interest, banks rely on this method of funding more than others. As Gerding (2011) argued, the overall economy benefits because deposits are greater suppliers of investment capital, deposits make the financial system stronger because banks benefits from the cheapest source of funding, and depositors enjoy the safe short-term storage for their money.

Intermediated banking via shadow banking is a different from the first two options. In intermediated lending via shadow banking, all activities between the lenders and borrowers take place outside the traditional banking system and are governed by market-based forces (Luttrel et al., 2012). The traditional banking system is made by banks that have a banking charter, while the shadow banking system has entities that have a banking charter but they offer the same services as traditional banks.

Securitization

Both traditional banks and shadow banks indulge in securitization. However, securitization is the primary business of investment banks (Tahzan, 2012). The primary function of securitization is the special intermediation of money through raising and issuing securities through capital and money markets.

In Step 1, as shown in Figure 2, depositors buy repurchase agreement from banks whose management turns around and lends the funds to direct lenders (Step 2). The direct lenders then use these funds to fund mortgages and other loans and receive cash (Step 3). Finally, in Step 4 management at banks securitizes these mortgages and receives cash (Tahzan, 2012). The way management at banks makes money in securitization is the difference between the face value of the repurchase agreement issued by banks and the total value of the of the repurchase agreement. This difference can be positive or negative depending upon the state of the economy.

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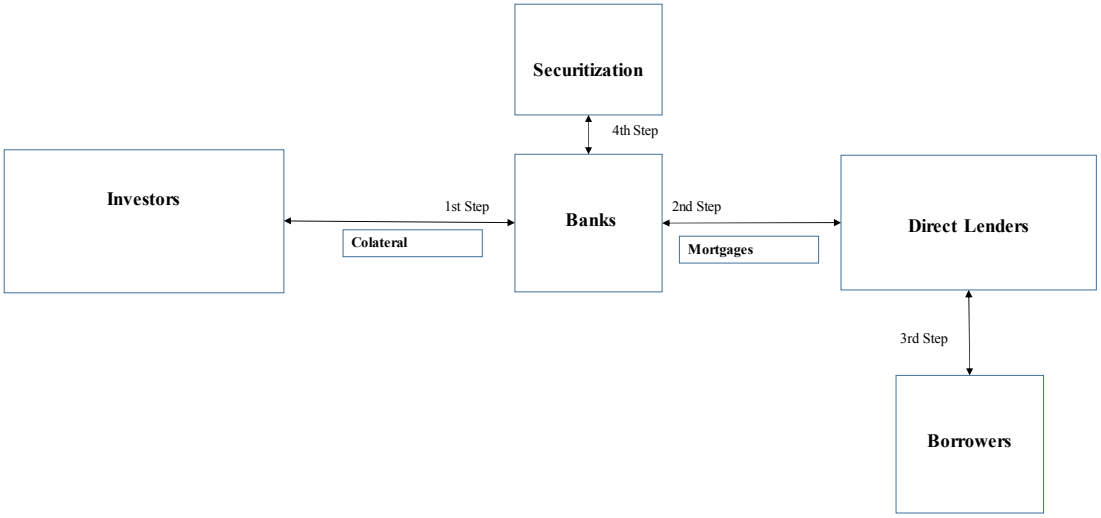

Figure 2.Securitization in detail.

The use of securitization by management at investments banks has both positives and negatives even though the positives outweighs the negatives. According to Tahzan (2012), the funds generated through investments are used to finance more development projects. However, the downside to this is that due to competition from other traditional banks for funds, management at investment banks must offer higher interest rates on deposits. Despite this limitation, investment banking revolutionized the banking system (Tahzan, 2012).

The Traditional Banking System

The early literature on financial intermediation either did not exist or was very scant. I conducted extensive searches that yielded thin results. What existed in the literature was on banking and financing. According to Tarhan (2012), most of the early literature was on bankers and financiers who had played important roles in the state

mechanisms mostly in European countries. The first discussion about bankers and financiers is about those in Greece, Rome, and other European countries. Most the bankers and financiers during this period were mint makers and goldsmiths who made fortunes even though their businesses were considered to be ungentlemanly (Tahzan, 2012). The main reason for this negative feeling about the bankers and the financiers in those days was the religious teaching against earning interest (Tahzan, 2012). Some conservative religions believed earning interest was forbidden.

Subsequent literature on banking was about the 19th century banking in Britain where bankers were educated so that they could be absorbed into the upper echelons of society. By the late 19th century, more than half of bankers were accepted into the aristocratic classes of the British culture, and their contributions were formally recognized as the primary cause of wealth and prosperity of the state (Tahzan, 2012).

Before the emergence of shadow banking, depositors and borrowers met at a single point where savers entrusted their money to the traditional banks in the form of deposits in return for tiny interests, and the banks used these deposits to extend loans to borrowers (Adrian et al., 2013). Yardan (2014) described traditional banking as individuals or firms making deposits at banks and receiving guarantees for the funds deposited. According to Luttrel et al. (2012), lenders under the traditional banking system were mostly households and business with excess cash while borrowers were also households and businesses needing loans for home and businesses. With this perfect situation, banks acted as agents and undertook the critical functions of maturity, liquidity, and credit transformation. Yardan (2014) stated that traditional banks then lent these

funds at a higher rate to borrowers and received mortgages or promissory notes as collateral. With this practice, management at traditional banks made a profit by spreading between interest rate pay to depositors and the interest rate charged to borrowers (Luttrell et al., 2012). This arrangement, according to Luttrell et al. (2012), was possible because management at traditional banks issued safe and demandable deposits backed by federal deposit insurance. This view is consistent across the scholarly spectrum of traditional banking. According to Binder (2013), traditional banks are regulated because of the following reasons:

- prevent collapse of the country's financial system,
- limit contagion should one bank collapse, and
- minimize the cost to taxpayers.

This same view was shared by Gerding (2011) who noted that banking was not exciting after the great depression due to regulations. However, Gerding contended that even though these regulations burdened traditional banking at the time, they protected customers. According to Gerding, regulations also restricted risk-taking by banks to prevent future losses. The argument against excessive regulations was they limited competition of new banks and awarded franchise status to banks (Luttrell et al., 2012).

Figure 3 illustrates the traditional banking system as it exists today. In the first step, individual and business make deposits into traditional banks and receive guarantees that the funds will be available when needed. This is primary source of funds to these traditional banks. In the second step, management at the traditional banks lend these fund to other customers who need to borrow these funds and receive collaterals against them.

Therefore, in this simple maturity transformation new money is created since the traditional banks took short-term funds to make long-term lending (Tahzan, 2012).

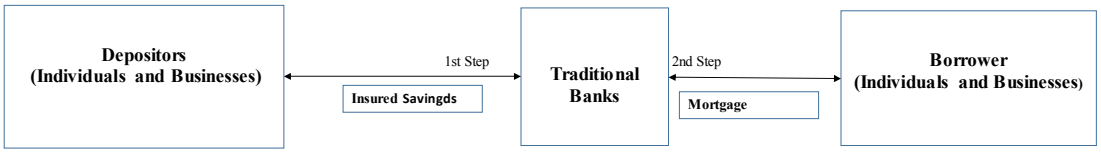

Figure 3: The traditional banking system. Adapted from "Regulating the Shadow Banking System" by G. Gorton and A. Metrick, 2010, *Brookings Papers on Economic Activity*, (2), 261–312.

Even though traditional banks have found a way of creating new money, however the new money being created is limited by the amount of the deposits received (Tahzan, 2012). Consequently, as the ability of the traditional banks in raising money was limited by the deposits (Gorton & Metrick, 2010).

The limitation of raising money by traditional banks opened the door to investment banking. In the US, for instance, commercial banks metamorphosed into investment banks largely due to rise in prosperity and elimination of rules that prevent traditional banks from operating as commercial banks (Tahzan, 2012). The rise of investment banking was choreographed into three stages by majority of scholars who have done research in this area. According to Tahzan (2012), in the first step, investment banks were the only units who underwrote funding for both government and non-financial entities using securities. In the second step, investments banks were engaged in brokerage and portfolio management and in the final step, management at investment banks acted as middlemen in merger and acquisitions. Gorton and Metrick (2012), on their part stated

that the rise of investment banking in the U.S. took off in 1934 when investment banking separated from commercial banks with the enacted of the Securities Act.

The traditional banking system is noted for the following functions some of which have been adopted by the shadow banking system. Notable among them are maturity transformation, liquidity transformation, credit transformation, offering deposit insurance, and having a lender of last resort to fall upon.

Maturity transformation. This is the process of changing short-term deposits to make long-term loans. Under maturity transformation, management at traditional banks used the short-term deposit by customers to make loans to other customers and business (Luttrell, Rosenblum, & Thies, 2012). The deposits received from customers thus become liabilities of these banks and the loans that are made become assets. The key distinction here is that these liabilities can be demanded at any time while the have a longer maturity hence traditional banks are subject to higher interest rate risk should rate rise (Luttrell, Rosenblum, & Thies, 2012).

Liquidity transformation. Liquidity transformation is generally referred to as use of liquid (easily convertible to cash) instruments to fund illiquid (not easily convertible to cash) assets (Adrian & Ashcraft, 2012). Since assets held by traditional banks are less liquid than liabilities, these traditional banks are required by law to only hold a fraction of deposits as cash on hand should it be needed (Luttrell, Rosenblum, & Thies, 2012). By this action, traditional banks are in have enough money to lend.

Credit transformation. Loans made individuals carries a risk that is specific to that transaction. In order to reduce that risk, traditional banks make loans to a large

number of people through the process of diversification ((Luttrell, Rosenblum, & Thies, 2012).

Deposit insurance. The traditional banking system often has unique feature called deposit insurance. The Banking Act of 1933 established the Federal Deposit Insurance Corp (FDIC) which is backed by the full faith and credit of the government of the United States (Luttrell, Rosenblum, &Thies, 2012). The main requirement under the act is that all deposits currently up to $250,000 are insured and guaranteed by the U.S government. Since that time, no depositor has lost money on insured deposits due to bank failure (Luttrell, Rosenblum, &Thies, 2012). The deposit insurance thus gave people confidence that their deposits are safe – something that boosted the stability of the traditional system.

Lender of Last Resort. Traditional banks need to have ample liquidity at all times if they are to serve as the lender of last resort (Gerdin, 2011). In addition, the Federal Reserve Bank provides discount windows that enable banks to borrow on short-term basis at a rate just above the Federal Open Market Committee (FOMC) target rate (Luttrell, Rosenblum, & Thies, 2012). This action serves as backup plan for the traditional banks.

The Shadow Banking System

The shadow banking system is noted for three distinct capabilities as described in a speech by Gerald Corrigan in 1982. According to Gerding (2011), Corrigan described these functions as unique hence required a special form of regulatory treatment that is different from the way traditional banks are treated. The first distinct feature is that the shadow banking system provide special credit instruments to consumers and borrowers

that enable investors to invest in the capital markets. The reason for this is because, in the shadow banking system only the shadow banking instruments are investment units that indirectly used to lend fund to borrowers which they might not otherwise have gotten. Secondly, the shadow banking instruments used by shadow banks have the same liquidity features as bank deposits and the thirdly, shadow banks serve as conduit for monetary policy.

The existing literature is full of various explanations about how the name shadow banking came into existence. However, majority of the scholars focused on the role credit intermediation system have on shadow banking system. The reason for this is because the credit intermediation system is regarded as an essential economic function, since a well-capitalized bank making credit available to households and business fuels an engine of growth beyond imagination (Luttrell, Rosenblum, & Thies, 2012). In this sense, shadow banks perform the same credit intermediation as traditional banks but only this time through multiple balance sheet rather than an individual balance sheet (Luttrell, Rosenblum, & Thies, 2012).

Gerding (2011), agreed with the above-mentioned characterization of the shadow banking system but also added that in addition to providing the same functions as traditional banks, shadow banks also connect household and borrowers to investors through the capital market system. By this function, shadow banking is a sort hybrid system in which at some time the system acts as bank in the traditional sense and at some other time it harness the capital markets system – which is a typical function of the shadow banking system.

Gennaioli, Shleifer, and Vishny (2013), defined shadow banking as financial transactions happening outside of the regulated traditional banking system. Adrian and Ashcraft (2012), on their part, looked at shadow banking as a web of financial institutions with special functions that are needed to move funding from savers to depositors. The moving of funding in the shadow banking system is done mostly through securitization and some other advance and secured funding techniques. Not surprisingly, Adrian and Ashcraft also concluded that the shadow baking system is noted for the same credit and maturing transformation as traditional banks but without any explicit public support (2012). This particular assessment of shadow banking system closely followed that of Pozsar et al. (2010), who defined shadow banking as a network of financial intermediaries that provide 'credit intermediation'. Specifically, credit intermediation as defined by Pozsar et. al (2010) consists of the following:

- Maturity transformation
- Credit transformation
- Liquidity transformation

Gerding (2011), went a step further and described the shadow banking system as a web of financial instruments that connects borrowers (mostly households and businesses) to investors in the capital market system. The emphasis in the approach taken by Gerding (2011) is add to the current definitions in the literature about shadow banking by focusing on several additional features of the shadowing banking system – pooling, structuring, money creation, and opacity. Hence, Gerding (2011) enumerated six distinguishing features of shadow banks that from traditional banks:

Shadow banks are units that serve critical credit intermediation role that traditional banks cannot do due to regulations preventing them.

- The pooling of financial assets and risks.
- Bundling and re-bundling of cash streams and risk from financial assets.
- Engagement in unique maturity transformation.
- Creation of assets with theoretically low risk and high liquidity that possess many features of money.
- It is a very opaque system.

The Financial Stability Board (FSB), which is the ultimate authority in the naming of financial terms defined shadow banking as a credit or financial intermediation that takes place outside the regulated or regular banking system (2012). The FSB thus named shadow banks as investment banks, mortgage brokers, etc. and also named most of the tradable instruments in the shadow banking e.g. asset-backed securities, mortgage-backed securities, etc. The detail working of the shadow banking system is shown in figure four below.

In step one, management at Money Market Mutual Funds (MMMFs) sell their shares to investors. The management at MMMFs then turn around and lend the funds received back to shadow banks in return for collateral as depicted in step two. Management at the shadow banking system then fund private borrowers in step three and receive loans. In step four, management at shadow banks sell these loans to Special Purpose Vehicles (SPVs) and receive cash and securitized bonds. In step five, management at these SPVs sell their securitized loans to MMMFs. One thing that is clear

is that all the steps have some form of haircut depending on the risk level in each security (Tahzan, 2012).

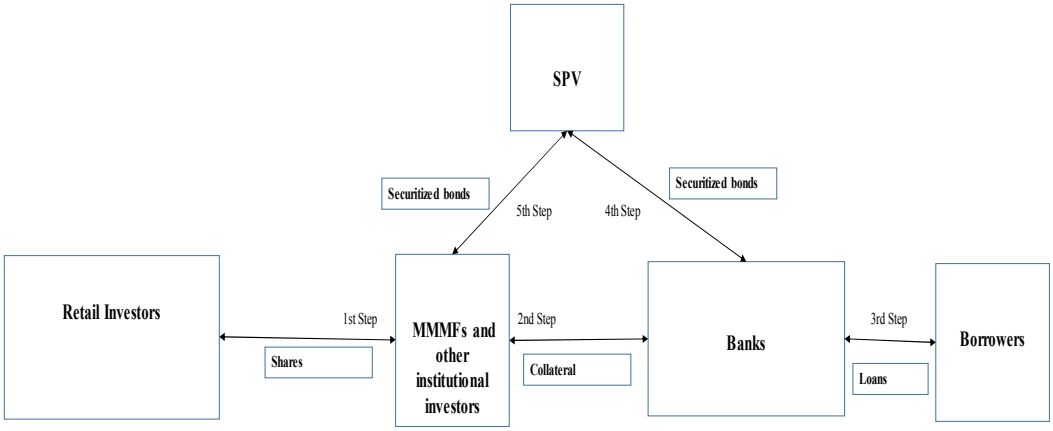

Figure 4: The shadow banking system. Adapted from "Regulating the Shadow Banking System" by G. Gorton and A. Metrick, 2010, *Brookings Papers on Economic Activity*, (2), 261–312.

From figure four, it is very clear that the shadow banking system therefore intermediates credit through securitization supported by wholesale funding – as more cash comes in as loan is repaid the more loans them made again. Other scholars decomposed the shadow banking system as a simple retail-deposit-funded process that have been transformed into hold-to-maturity lending that are wholesale-funded (Adrian, Ashcraft, Boesky & Pozsar, 2013). With this set-up, Adrian et al. (2013) continued, the shadow banking system transforms long-term loans into a risk-free short-term loans.

The shadow banking system metamorphosed from the originate-and-hold banking model funded by deposits to a highly leverage originate to distribute credit intermediation model of fee-based income (Gerding, 2011). In the advanced states of shadow banking,

important activities such as providing short-term near safe debt to other financial firms through such mediums as money market funds, etc. take place in addition to leveraging. Through increasing leverage, management at shadow banks could boost short-term profits by directing more capital to towards securitized asset class rather than they otherwise might have used (Admati & Hellwig, 2013). Perhaps, the most important distinction about shadow banking system is that it can originate both safe and risky loans, and it can finance this through its own resources or by issuing new debt (Gennaioli, Shleifer & Vishny, 2013). Thus, in the shadow banking system, the short-term funding therefore serves as a substitute for deposits used in the traditional banking system. These substitutes are very profitable when the economy is booming and can be vulnerable to bank runs during band times if care is not taken.

The early literature on shadow banking system also did not state any concrete reasons as to why shadow banking system exists. In fact, it is the recent works into the shadow banking system that identified three broad explanations for the existence of shadow banking namely (a) innovation in the composition of aggregate money supply, (b) capital tax, and accounting arbitrage, and (c) other agency problems in the financial markets (Adrian & Ashcraft, 2012). In fact, Gerding (2011) attributed the existence of shadow banking to the six unique features of the mentioned in the preceding paragraphs. These unique features (intermediation, pooling, structuring, maturity transformation, money creation, and opacity) alone and together as system acted as very good substitutes for many of the economic functions of depository institutions but also with theoretically very low risk and a high liquidity. Other scholars improved on the work on shadow

banking and stated that key things need to be look at before one can really understand why shadow banking exists today. These are credit and leverage, the key players, innovation in the composition of aggregate money supply, capital, tax, and accounting arbitrage, other agency problems in financial markets that make the shadow banking system what it is today (Gerding, 2011: Admanti & Hellwig, 2013).

Credit and leverage. It is a common knowledge in the finance literature that bankers are well-known for their desire to use more credit and leverage as a source of financing. However, before the advent of the shadow banking system traditional banks were restricted in the way credit and leverage is used. According Gerding (2011), leverage allow management at banks to borrow money and use to invest and not only that but it always allow them to increase potential return on equity beyond what is possible if they were to use their own funds. This assessment is also share by Admanti and Hellwing (2013) who also added that however leverage can be a good thing or a bad thing depending on the outcome of why leverage was needed. There are three most popular forms of leverage described in the literature namely balance sheet leverage, economic leverage, and embedded leverage (Gerding, 2011). The balance sheet leverage occurs when management at banks borrow funds to acquire more assets. The economic leverage occurs when a loan guarantee does not appear on the firm's balance sheet but because it may be a contingent liability that may happen in future, and an embedded leverage occurs when a firm invests in a security more than its own self leverage. Therefore, it is not a coincidence that the rise of shadow banking coincides with the increase use of leverage and credit. According to Gerding (2011), the ability of a firm to borrow beyond its means

is like and lifeblood of a firm. As such, the shadow banking system came with innovative products that takes money from the capital markets mostly through conduits and ultimately to borrowers.

Key players. The shadow banking system arose because of the so many factors and conditions that were favorable for a new kind of financing. According to Gerding (2011), shadow banking is an entangled web of financial instruments and financial institutions with each units playing a unique part. Among the financial institutions who are the key players in the shadow banking system are investment banks, hedge funds, government-sponsored entities, less-regulated mortgage lenders and other loan originators, banks and regulated entities, and financial conglomerates.

Management at investment banks most often acts a facilitators in financing large projects and also provides their wealthy clients with investment advice. Gerding (2011) stated it clearly that majority of the investment banks serve as a hub for shadow banking since management act as a middleman. Through investment banking channels, wealthy clients purchase and sell asset-backed securities, credit derivatives both internally and with other financial institutions (Gerding, 2011).

Hedge funds are the epicenter of the shadowing shadow banking web according to most scholars in the existing literature. The ability of management at these hedge funds to invest in all kinds of assets made them very attractive to investors especially private investors. The reason for this is because hedge funds are unregulated and are free to make all kinds of investment choices with not supervision. As Gerding (2011) noted, the ability

of managers of hedge funds to take huge leverage is only restricted by their investors and creditors.

Government-Sponsored Entities (GSEs) such Freddie Mac, Fannie Mae, and Genie Mac enabled the shadow banking system. According to Gerding (2011), the GSEs provide market of asset-backed securities especially the residential mortgage market. The Congress of the U.S. established them for two reasons -- pool and securitized residential mortgages up to certain loan limits, and also purchase investment portfolio of residential mortgages of from other lenders.

The role play by the less-regulated mortgage lenders and other originators is not very clear. However, they are considered as an integral part of the shadow banking web. The reason for this is because, management at these institutions originated mortgage loans that could only be securitized and not held-to-maturity. Hence, they are often regarded as providing the raw materials for the mortgage-backed securities market (Gerding, 2011). At the same time, management at other non-banks companies such ate credit card, student loan, and automobile finance companies originated asset-backed securities for the capital market. Lastly, both regulated entities and financial conglomerates co-habitate under the same corporate umbrella. The influence of one from the other therefore becomes untenable as investment banks, broker dealers, hedge funds, and other financial institutions transfer subsidies and affiliates within the same corporate structure.

Innovation in the composition of aggregate money supply. The earliest form of money supply according to Adrian and Ashcraft (2012) is the commodity money that was

tied to gold and silver. The commodity money was later replaced by fiat money which has a small intrinsic value but was backed by the issuer's promise to convert it commodity. Over the next thirty years, due to various financial panics and the limits on the ability of banks to pay interest on checking accounts, led to the development of MMMF. According to Adrian and Ashcraft (2012), the main advantage of MMMF is its overnight repurchase agreements which is equivalent to notes secured by collaterals. Suderam (2010) documented how this financial innovation constituted substitute for money and it is being championed by shadow banks.

Capital, tax, and accounting arbitrage. The lack of consistent regulations business most often results in financial arbitrage. Adrian and Ashcraft (2012) noted that perceptions about too big to fail often permit excessive leverage maturity transformations since there are inconsistent rules governing different aspect of banking. Therefore, the big motivation for capital arbitrage is consistent explicit liquidity associated with deposit insurance and access to official liquidity (Adrian & Ashcraft, 2012).

Other agency problems in financial markets. Several articles have been written about the issues of subprime mortgage meltdown. The most notable one being that of Ashcraft and Schuermann (2008) that detailed seven important informational frictions that existed in the securitization of subprime mortgages. Among the issues were lack of symmetric information between lenders and originators, and between lenders and investors.

Growth of Shadow Banking

The growth of the shadow banking system has been a subject of much debate among scholars. Among them include Gerding (2011), who attributed the rise of shadow banking to three factors:

- Regulatory arbitrage
- Deregulation
- Legal subsidies

However, the earliest literature on shadow banking identified three sub-groups of shadow banking that are responsible for its rapid growth i.e. the government-sponsored shadow banking system, the *internal* shadow banking system, and the *external* shadow banking system (Adrian, Ashcraft, Boesky & Pozsar, 2013).

The internal shadow banking started when government-sponsored entities (GSEs) were created to provide term warehousing of loans system (Adrian, Ashcraft, Boesky & Pozsar, 2013). Prior to the GSEs, the US government in 1934 created the Federal Housing Administration (FHA) to issue home loans made by banks. The problem with the FHA was that, even though the loans were guaranteed, they were still help on bank's books hence the banks need reserves against it (Hirsch, 2012). That was the need for a new round of GSEs. These new GSEs are the Federal National Mortgage Association (Fannie Mae) in 1938, and later the Government Home Loan Mortgage Corporation (Freddie Mac) in 1970, and a competitor to Freddie Mac called Government National Mortgage Association (Ginnie Mae) (Hirsch, 2012). According to Adrian et al. (2013), the GSEs provide the following critical functions in the credit intermediation process:

- Term loan warehousing.
- Credit risk transfer and transformation.
- Originate-to-distribute securitization.
- Maturity transformation.

Pass-through Mortgage-Backed Security (MBS) funding of mortgage credit.

Following the years after the set-up of the GSEs, the innovation brought by GSEs were perfected by dealers and investors and resulting in both the internal and external shadow banking. As such, the consensus is that the internal shadow banking system came as result of desire of traditional banks to change from low-return-on-equity (ROE) units to high-ROE entities (Hirsch, 2012). To do that, management at these traditional banks, especially the largest ones developed advanced credit intermediation techniques that used off-balance sheet securitization and management techniques to conduct lending with very little capital that enhances their level of ROE (Adrian, Ashcraft, Boesky & Pozsar, 2013).

The external shadow banking system is similar to the internal shadow banking system but involve the use of off-balance sheet deals with global companies (Adrian, Ashcraft, Boesky & Pozsar, 2013). Even though the origination, warehousing, and securitization of the loans are done in the U.S., the funding and maturity transformations are conducted around the globe system (Adrian, Ashcraft, Boesky & Pozsar, 2013).
One of the hallmarks of shadow banking come in the area of superior market knowledge, financial innovation, and specialization. The ability to invent new financial products or discover new ways of delivering the existing products go a long way to reduce cost for business and individuals. Even though there are counter arguments against the innovation

brought by the shadow banking system i.e. for having a hidden side of financial arbitrage, those are not strong do undermine the tremendous contributions to the economy of the countries involved. A typical example is leverage –which is the ability to use debt to finance new investments (Binder, 2013). Other scholars like Gerding (2011), argued that some of the core elements of shadow banking such as securitization, derivative trading, etc. were novel ideas that answered two of the basic questions facing the financial markets at a time i.e. liquidity and solvency risk.

Liquidity risk is known to occur because banks borrow short and lend long (Hirsch, 2012). Banks take deposits from customers and then turn around and lend these funds to other borrowers. The problem here is that, customers can withdraw their money anytime while the loans made by banks are have longer contract terms like 30-year mortgages, 15-year mortgage, etc. This creates what is called asset-liability mismatch (Hirsch, 2012: Gerding, 2011). The reason for this is because, if for any reason customers begin to withdraw their money from the banking system, there is the potential for panic that can result in something called bank-runs – a situation where all depositors withdraw their funds at the same time due to fear that the money will not be available when needed. Banks are exposed to solvency risk because they make long-term loans to different type of borrowers hence face the possibility that some will not pay back their loans. This may be the result of conservation of risk at due to the creditworthiness of the borrowers of too much of the same type of product. Should the borrowers default, then the bank or banks could be highly leveraged and if care is not taken this could result in insolvency of the banks involved can spread to other banks (Hirsch, 2012: Gerding, 2011).

Other scholars devoted a very large part of the existing literature on the growth of shadow banks to policies instituted in the 1970s in an attempt to open the credit intermediation to rest of the economy. Notable among these polices were reduced supervision by the regulators and relaxed regulations (Masumder & Ahmad, 2010). The policies of the 1970s where augmented in the 1980s by the introduction of deposit insurance and Regulation Q which limited the interest rates that is demand deposits. As a result, there are demands for deposits substitutes by shadow banks since by law shadow banks cannot take deposits. Perhaps the biggest of the policy changes was the repeal of Glass-Steagall Act of 1933 by Gramm-Leach-Bailey (GLB) Act of 1999 which created a gigantic and complex financial supermarket (Masumder & Ahmad, 2010). The main consequence of GLB is that it implicitly allowed banks for that matter shadow banks to take additional risk (Masumder & Ahmad, 2010).

Securitization

The risks associated with liquidity and solvency is well-documented in the existing finance literature. The lack of solutions to the problems of liquidity and solvency have also been well-documented in the existing literature. The answer to these chronic problems is securitization. Gerding (2011), described securitization as the process of transforming illiquid loans into liquid securities which are then sold to investors. Thus within a twinkle of an eye, a lender could turn a seemingly illiquid asset into cash. Other scholars described securitization as the process of pooling together debts that are then converted into bonds or other securities and then sold to investors (Acharya, Schnabl, & Suarez, 2012).

The original intent of securitization is to transfer risk from the banking sector to outside investors (Acharya, Schnabl, & Suarez, 2012). The early theories on shadow banking is about how securitization met the demands of safe debt by pooling and trunching cash flows in order to reduce the risk of securities (Gorton & Pennnachi, 1990: De Marzo & Duffie, 1999: De Marzo, 2005 Dang, Gorton, & Homstrom, 2009). Gennaioli, Shleifer, and Vishny (2013), on their part described the securitization as debt being collateralized and assembled into pools and then trunched to create safe instruments. As a result, a security instrument like a bond is a very small piece of the consolidated debt and with tiny risk exposure (Luttrell, Rosenblum, & Thies, 2012). This means that each holder of the bond has a piece of the risk exposure rather one holder and the risk is diversified. Since any risk exposure is now shared, a single loan default has only a minimal impact (Luttrell, Rosenblum, & Thies, 2012). This is the beauty of securitization at its best according to Luttrell, Rosenblum, and Thies (2012).

Gerding (2011), also noted that with securitization, investors can purchase asset-backed securities and use the money to invest in the consumer credit market while at the same time holding the securities, which in theory, are more liquid than the underlying mortgages. Therefore, with the aid of asset-backed securities, investors can diversify risk. Gerding (2011), further claimed that diversification means that the risk of default on any of the underlying pool are minimized since some parts of the pool will continue to bring cash flows if other do not. The main assumption here is that loses among the pool will not by highly correlated and can be estimated fairly accurately and dealt with. Gerding (2011), also enumerated two additional benefits of securitization. Firstly, securitization

facilitates diversification because the investor is only purchasing a tiny portion of the pool risk. This small portion could be also be diversified through other investments. Of course there is an inherent assumption here that the losses among first pool of investment are not highly correlated with losses on the second pool of investments. Secondly, diversification helps investors through the term of the security being issued. This is possible because securities can be structured to create different classes or tranches each with a different level of risk and reward. On the whole, Gerding (2011) agreed with other scholars that securitization benefits the whole economy by spreading risk to the larger investor population who in theory are believed to bear risk more efficiently. However, there is one caution here since the efficiency is heavily dependent on the accurate pricing of the underlying securities.

Securitization according to Hirsch (2012), gave investors access to many areas of finance which they would have never dreamt of. Acharya et al. (2012), noted that through careful innovation securitization is now being used by investors to enable them retain part of the risk on their portfolio yet receive a regulatory capital reduction. Financial institutions especially banks have been looking for ways to reduce regulatory capital requirement for years and securitization brought a new tool for them to use. On the part of shadow banks, they were completely exempted from any regulatory requirement.

Securitization by the shadow banking system take many forms. To this end it not a far-fetched truth the shadow banking system is organized around securitization (Adrian, Ashcraft, Boesky & Pozsar, 2013: Adamanti & Hellwig, 2013). This assertion is evident

in the type of financial instruments that are used in the shadow banking system. The most notable securities used in the shadow banking system include Asset-Backed Securities (ABS), Asset-Backed Commercial Paper (ABCP) conduits, Credit Default Swaps, Credit Derivatives, Money Market Mutual Funds (MMMF), Repurchase Agreements (Repo), and Structured Investment Vehicles (SIV).

Asset-backed commercial paper. ABCPs are special purpose vehicles that are mainly used by shadow banks and other non-banks in the securities market (Blinder, 2013). A typical ABCP is a conduit for issuing of short-term asset-backed commercial paper financed by funds purchased from medium to long-term assets (Acharya, Schnabl, & Suarez, 2012). Therefore, in a way, ABCPs are providing working capital for non-traditional banks i.e. shadow banks for that matter. Gerding (2011), went a little further when talking about ABCPs. He stated that ABCPs are mainly used when companies need financing. In order to secure this financing, management at these companies sell part of their assets to an investment vehicle. Subsequently, the investment vehicle then issues short-term securities with maturity date between 90 and 180 days. Thereafter, the proceeds from selling the securities are then used to purchase the underlying asset. It is these assets Gerding continued, that are used as collateral for making payments (2011). As such, ABCPs are considered safe and liquid just as deposits in the traditional banking system (Hirsch, 2012).

Even though ABCPs are share similar characteristics as traditional securitization, they have subtle differences according to Gerding (2011). In the first place, the conduit of an ABCPs may involve a revolving set of assets that may change over time. Secondly, as the

ABCPs matures, the conduit can issue an entirely new paper to investors something that cannot be done in a traditional securitization. The potential downside of this unique feature is asset-liability mismatch – a situation where a conduit will short-term obligations to investors while holding long-term assets (Hirsch, 2012: Gerding, 2011). For this reason, ABCPs are normally created by sponsors' entities that need financing. As such majority of these sponsors are shadow banks that do not have access to customer deposits hence needs money. Therefore, it not an accident that ABCPs are invented and made popular by the rise of shadow banking.

Credit derivatives. A credit derivative is a form of an insurance that protects the buyer from the default of an underlying asset (Gerding, 2011). It is not an asset by itself but it is derived from an underpinning asset. A typical credit derivative is usually a contract that between two parties in which the seller agrees to receive a premium in exchange for paying a specified amount should holder of the underlying asset defaults (Gerding, 2011).

In figure four below, an investor seeking a credit derivative contact a derivative company. The management at the derivative company then sells a credit derivative contract to the investor. In return the pays premium plus any other risk associated with asset to a derivative counterparty. In return, management at the derivative counterparty pay a specific agreed amount should a default occurs.

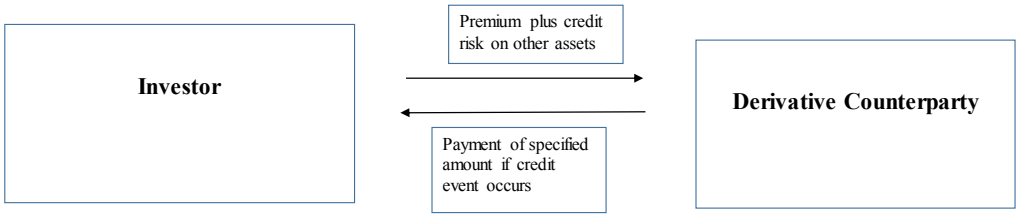

Figure 5: Credit derivative. Adapted from "Regulating the Shadow Banking System" by G. Gorton and A. Metrick, 2010, *Brookings Papers on Economic Activity*, (2), 261–312.

One thing that is clear is that the distinction of specific credit risks is a form of structuring with specific rewards and risks of underlying assets that bundled and rebundled (Gerding, 2011). Even though credit derivative is a form of protection, seller could also hedge the risk it assume. As such credit derivatives are mostly used in shadow banks to hedge the risk of default on asset-backed securities in its portfolio (Gerding, 2011).

Credit default swap (CDS). This is a derivative instrument which serves as a private insurance that are used by the shadow banking system (Blinder, 2013). The seller insures the buyer against loss from the default of the underlying security. The beauty of this according to Blinder (2013) is that the dealers of the underlying security makes money at both ends. The reasoning for this is that one can buy or sell CDS from swap dealers without knowing if who owns the other side. This is a piece of innovation that is possible because of shadow banking (Blinder, 2013).

A typical CDS has three distinct features that make it very palatable to investors. First, it is a typical derivative but with an embedded huge synthetic leverage. According to

Binder (2013), a CDS buyer can just make few payments before the holder of the underlying security defaults and in that case the seller will be on the hook for a huge loss. The opposite is also true, the seller can continue to receive payments and the underlying security holder never defaults; in this situation the seller is way better off. The second unique feature about CDS is that it is a zero-sum deal i.e. only seller or the buyer wins and vice versa therefore cannot win (Binder, 2013). One caveat here is that a CDS deal is considered a safe since it is mostly between consenting adults. The third unique feature is that those who deal with the CDS market make money on both ends. According to Binder (2013), a typical investor cannot buy or sell CDS by himself or herself. That individual have to go through CDS dealers who charges fees to both sellers and buyers. Therefore, everyone is a CDS deal benefits.

Structured investment vehicle (SIV). Structured Investment Vehicles are specialized financial institutions that conduct maturity transformation with assets such as Asset-Backed Securities (ABS), Mortgage-Backed Securities (MBS), Collateralized Debt Obligation (CDO), Collateralized Loan Obligation (CLO), and Collateralized Mortgage Obligation (CMO) (Adrian & Ashcraft, 2012). An ABS is receivable on credit card loans, car loans, etc. that are used to conduct business in the capital markets while an MBS are mortgage loans used for the same purpose.

A CDO is a vehicle through which loans are trunched up into junior, mezzanine, and senior levels. The junior tranche is set up to absorb the most toxic component of the CDO (Hirsch, 2012). The most toxic element according to Binder (2013), is set up to absorb the first eight percent of losses coming from the CDO no matter where it is coming from.

The mezzanine tranche absorbs the next two percent of the losses coming from the CDO. The senior tranche will only absorb the losses above 10 percent – something that less likely to occur. Hence, the senior and the middle tranches in a CDO always sell at par while the junior trance sells at a discount because of the expected losses.

A more advanced and somehow a complicated effort by investors resulted in what is called CDO-squared. According to Binder (2013), a CDO-squared is created when the junior tranches of a CDO are re-securitized. Gerding (2011) described CDO-squared as iterative layering of securitizations of securitizations which in a nutshell provides additional market for asset-backed securities by increasing their liquidity.

Money market mutual funds (MMMF). MMMFs are one of the unique signature developments of the shadow banking system. According to Gerding (2011), MMMFs are designed to provide low risk and at the same time highly liquid securities to investors as a substitute for bank deposits with higher effective interest rate. Management at these funds sell shares to investors and used the proceeds to invest in safe debt securities such as senior tranches in asset-backed securities, ABCPs and corporate debt. As Gerding (2011) noted, this practice is much like maturity transformation because investors could withdraw those funds on demand – this is exactly what deposits do and hence MMMFs are considered safe deposits.

Repos. Repos are agreement between two parties in which a borrower sells a security at price below the market value and agrees to repurchase it back at an agreed-upon price in the future (Gerding, 2011). The agreed-upon price is normally higher hence the buyer pocket the difference which is called a haircut. The size of the haircut

have different effects of borrower and the lender. A larger haircuts means more collateral for the lender hence an incentive while it represents more leverage to the borrower and vice-versa (Gerding , 2011).

The repo market is a large source of financing for financial institutions especially those who cannot take deposits. A lot financial institutions reply heavily on 'overnight' repo market for short-term financing. An overnight repo market is a repurchase agreement with less than a day to mature (Gerding, 2011). Many financial institutions use the repo market to make payroll and other short-term financing needs (Gorton and Metrick, 2011). As such, the provision of short-term financing with collateralized made repos similar to demand deposits, therefore they are considered its substitute.

Summary and Conclusions

In this literature review, I have exposed and educated the readers of this proposal to the vast amount of published literature in the area of banking in general. I have importantly went through the origin of banking to the current evolution of banking. I began the literature review by proving a schematic diagram on the scholarly works that preceded my work. I discussed the world of financial intermediation and the role played by individuals, policy holders, companies, and the whole economy. I then discussed traditional banking and shadow banking in detail.

In the literature on traditional banking, I drew the attention of the readers to the role played by traditional banks in the brother economy. I then followed up with how traditional banks are heavily regulated in other to protect the general public. I also discussed the privileges that are granted to traditional banks in return of being heavily

regulated. Following that I discussed the conditions there made it possible for the development of shadow banking.

In the literature on shadow banking, I educated my readers to the earliest literature on shadow banking. I then went through the role played by regulators especially in the U.S. that feted the growth of shadow banking. I discussed how private insurance resulted in the growth of deposit substitutes. I also discussed the role of securitization, financial innovation and lack of regulated promoted the growth of shadow banks. I briefly talked about some well know products that were developed dues to financial innovation.

So, I have discussed the contributions of other scholarly major works that preceded my work. One major glaring theme in all the work is the lack of regulations have affected the return on equity of both traditional and shadow banks. Couple of major works that preceded my research hypothesized that too much regulations will possible affect traditional banks more that shadow banks but there is not study to support or reject such a claim. This is where my study come in.

I will now proceed to chapter three of my dissertation. In this methodological section, the review of the literature in chapter 2 informed operational collections of data, testing of the hypothesis, and how the research was conducted.

Chapter 3: Research Method

In the first section of Chapter 3, I present the operationalization of the research hypotheses. I begin by restating the hypotheses and also describe the dependent and independent variables. I also restate the purpose of the study. In the second section of the chapter, I focus on the research design and rationale for choosing it. In the third section, I focus on the population and data collection methods that were used in gathering data for testing the hypothesizes. I also describe the sampling and sampling methodology and explain the data analysis plan including the instruments, method, and tools used to prepare the data. I conclude the chapter with a summary.

Operationalization of the Research Hypotheses and Purpose

Research Hypotheses

The hypotheses of the study are restated as follows:

H_o – There is no relationship between return on equity earned by banks and regulation, profit margin, leverage, asset turnover, economic conditions, and the banking system.

H_a – There is a relationship between return on equity earned by banks and regulation, profit margin, leverage, asset turnover, economic conditions, and the banking system.

In Table 1 below, I show the sources of the dependent and the independent variables.

Table 1

Dependent and Independent Variables

Hypotheses	Dependent Variables	Sources of Dependent Variables	Independent Variables	Sources of Independent Variables
There is no relationship between return on equity earned by banks and regulation, profit margin, leverage, asset turnover, economic conditions, and the banking system	Return On Equity	Gerding (2011); Gorton and Metrick (2010); Krugman (2011); Luttrell et al. (2012); Ricks (2011),; Stigler (1971); Tropeano (2011)	Regulation, Profit margin, Leverage, Asset turnover, Economic conditions, and Banking system	Acharya et al. (2013); Bordo et al. (2015); Bouveret (2011); Calvo (2012); Gennaioli (2012); Kessler (2012); Masunder (2010); Rixen (2013); Singer (2012)

Purpose Statement

The purpose of this quasi-experimental study was to examine the relationship between return on equity and variables such as regulation, profit margin, leverage, asset turnover, economic conditions, and the banking system (traditional banking system and shadow banking system) in the United States.

Research Design and Rationale

The goal of this study was to determine whether there was a relationship between return on equity earned by banks and regulation, profit margin, leverage, asset turnover, economic conditions, and type of banking system. To decide on the most suitable quantitative method for my study, I read studies from peer-reviewed journals and dissertations from Walden alumni. Gradually, I became convinced that a quantitative was necessary due to the following points from Johnson and Christensen (2008) about what a quantitative study:

- it is about testing hypotheses, looking at cause and effect relations, and making predictions;
- samples used in quantitative studies are larger and are randomly selected;
- in a quantitative study, specific variables are studied;
- A quantitative study is about numbers and statistics;
- Data are based on precise measurements with validated data-collection methods;
- A quantitative study is about identification of a statistical relationship;
- Objectivity is critical in a quantitative study;

- Study of behavior is done in controlled environments;
- Generalized findings from a sample can be applied to other populations;
- A quantitative study is full of narrow tests of specific hypotheses; and
- It is full of statistical reports with correlations, comparisons of means, and significance findings.

The reason for choosing a quantitative study was because it was the most suitable approach for investigating a clearly defined problem (Simon & Goes, 2014). Simon and Goes (2014) identified the following as characteristics of a good quantitative study:

- it is about theory testing;
- it has a synthetic testing element;
- a quantitative study has a clear objective;
- it involves tests and surveys;
- it uses descriptive and inferential statistics;
- it generates predictive relationships; and
- it has a goal of prediction, control, confirmation, and testing of hypotheses.

My study included most of the characteristics listed above.

In choosing the design for a quantitative study, Trochim (2006) suggested the main factor is often the randomness of the sampling methodology. If the samples can be randomly assigned, then an experimental design may be feasible (Trochim, 2006). In cases when complete randomness is not feasible, Trochim argued that a quasi-experimental design is acceptable. Quasi-experimental designs are often referred to as natural experiments because the assignment of membership in a group is beyond the

control of the researcher; members of the group are already assigned before the experimenter uses the data (Troachim, 2006). Even though quasi-experiments are less ideal than experiments due to the lack of randomization, they are very popular in social science research because there is a natural occurrence of events and there is flexibility with this approach (Troachim, 2006).

The most commonly used quasi-experimental designs are the nonequivalent group design and the regression-discontinued design. The nonequivalent group design includes pretests and posttests for comparison of groups similar to ANOVAs but without random assignment, whereas the regression-discontinued design requires assignment to a treatment group using a cutoff score on the pretreatment variable (Troachim, 2006). This is the main reason why I chose to do a quasi-experimental study because it is used in cases when a true experimental data is not available (Simon & Goes, 2014). I also chose to use the control series design because it combines a time-series method with the collection of similar data into nonequivalent comparison groups to control for history and test effects (Frankfort-Nachmias & Nachmias, 2008). Because my research question addressed the relationship between regulation, profit margin, leverage, asset turnover, economic condition, and strategy, and bottom-line of banks (traditional and shadow) as measured by return on equity, there was a good chance for testing effects of an action of different entities. As a result, my choice of the dependent variable was the average annual return on equity, and the independent variables were regulation, profit margin, leverage, asset turnover, economic conditions, and the banking system (traditional banking system and shadow banking system).

Methodology

Population

The scope of the data that could be used for this study was vast and overwhelming because banks exist in most parts of the world. Therefore, the main challenge was how ready and reliable data would be because different countries have different laws governing the conduct of the banks. According to the FSB (2012), the largest shadow banks are found in advanced countries where the existence of a well-functioning capital market is conducive to their growth and development. The shadow banking concept was conceived and developed by leaders in the Western advanced economies like the United States and Europe. However, leaders in emerging economies have also taken advantage of the benefits associated with the shadow banking system (FSB, 2012). The shadow banking system became so popular during the early 2000s that its growth outpaced the traditional banking system in some emerging economies.

Even though the shadow banking system differs across countries, the key drivers underlying its growth are largely the same FSB (2012):

- tightening of existing regulations on the traditional banking system,
- ample liquidity conditions provided by the shadow banking system,
- demand from institutional investors for higher interest,
- demand for new forms of finance,
- expansion of access to credit by supporting market liquidity,
- maturity transformation,
- risk sharing, and

- conducive economic conditions.

Despite all the benefits of the shadow banking system, getting transactional data to conduct a vigorous study is difficult because economies have local laws governing the safeguarding of financial data. According to the FSB (2012), the generally accepted accounting principles (GAAP) reporting system is used worldwide even though certain countries have local laws that are either stricter or looser than these requirements. In the United States, for example, the directors at the SEC mandate that the GAAP system be used in financial markets reporting. In many countries in the world, the international financial reporting standard (IFRS), which is weaker than the GAAP, is used. The reason for this is because the IFRS system is only a set of policy standards that must be obeyed and there are no deterring consequences (FSB, 2012). Consequently, I chose to focus on one country for data to make sure the study population was governed by one set of financial reporting standards. Another concern I had about getting data outside the United States was the safeguarding of financial data. The integrity of the data I used should not be questioned. Getting data from a developed economy like the United States would minimize any chance of compromised data.

The target population for this study was national commercial banks and investment banks located in the United States. Specifically, the population was financial institutions that were required to file financial returns with the SEC and were identified by the standard industrial classification (SIC) two-code system 60 and 62. The SIC code is assigned by the U.S. government to identify the primary business of each company and to facilitate the collection and analysis of data. The directors are SEC use the SIC code as

an identification number during the review of annual reports by companies. Companies belonging to the SIC Code 60 are nationally charted depository institutions engaged in deposit banking or related activities while those belonging to SIC Code 62 are institutions that are engaged in purchase, sale, and brokerage securities and investment activities.

The annual report is mandated by directors at the SEC to be filed by U.S.-based public companies. According to the SEC (2014), annual reports contain corporate information to shareholders who might otherwise not have gotten it. The annual report is also meant to provide the state of the company including a letter from the chief executive officer (CEO) to shareholders detailing the financial data, results of operations, market segment information, new product plans, subsidiary investments, and research development of the company. The annual report is filed using SEC Form 10-K, and it contains more information about the company's financial condition and annual financial statements. In general, management at companies elect to send Form 10-K to their shareholders instead of supplying tons of financial returns to them. One good thing about the annual returns filed using Form 10-K is that the annual return for the current year contains summary information about the previous five years. The annual returns are mostly submitted electronically using the SEC's Electronic Data Gathering, Analysis, and Retrieval (EDGAR) database. By law, leaders in companies are required to file returns within 60 days after the end of the fiscal year even though some do it sooner. The annual report contains the following information:

- description of the primary business of the company;
- potential business risks that could affect the company;

- any pending legal cases that could have a serious impact on the company;
- performance of the company stock against the appropriate benchmark index such as Standard and Poor (S&P) 500;
- audited financial data of the company (e.g., balance sheet, sales, etc.); and
- a letter signed by a member of board of directors of the company, CEO, and CFO attesting to the accuracy of the financial information.

Sampling and Sampling Procedures

There are about 1,018 companies that are registered with SEC under SIC four digit code 6021 and there are 230 companies with SIC four digit code 6211. I employed two-stage sampling techniques in order to choose a representative sample. In the first stage, I conducted purposive sampling to select depository and non-depository institutions meeting the following criteria:

- **Content**: They are banks engaged in the conversion of short-term loans to long-term loans as defined by core functions of a bank i.e. changing short-term loans by lenders to long-term loans for borrowers.
- **Extent**: Both types of banks are corporations as validated by their annual SEC filings.
- **Employees**: Both types of banks must have at least 100 employees
- **Time**: Both types of banks existed during the 5-year period (2003-2007)

The main assumption under the-above mentioned criteria is to have control factors that will serve as initial conditions and to avoid one big bank with thousands of employees having undue influence of the dependent variable i.e. ROE.

In the second stage of sampling, I used simple random sampling methodology to choose a sample of banks from the already selected banks from the purposive sampling. Simple random samples was drawn from each group – traditional banks and shadow banks. I chose the random sampling approach so that each unit of the population will have an equal and a nonzero probability of being selected if the study is to have a true representative sample. As Frankfort-Nachmias and Nachmias (2008) put it, a sample is representative if the analyzes made on it produces identical results to those that will have been obtained had the entire population been analyzed. Nevertheless, I will adhere to selection characteristics of *content*, *extent*, and *time* to ensure that only traditional and shadow banks are selected to construct the sample.

The sample unit was drawn from this finite population (42 units in total). The sample size was determined by the following factors (a) statistical power – the probability of not making type II error, (b) alpha, and (c) effect size (Trochim, 2006). For this study, alpha will be 0.05, the statistical power will be 0.80, and effect size from prior literature ranges 0.15 to 0.25. Using middle value of 0.20 (which is small effect size) and running a G*Power analysis a total of 42 sample size is recommended. Therefore, the resulting sample size will be total of 42 institutions (21 each from SIC code 6021 and 6211).

Data Collection Method

The data I used for my study is a secondary data. Secondary data, according to Frankfort-Nachmias and Nachmias (2008) is defined as data collected by someone else other than the researcher. As such, secondary data are those that have been collected for

another purpose but used by an investigator for a purpose that is different from its original purpose that it was collected for. Primary data, on the other hand are data collected by the researcher or a trained observers/collectors by the investigator. One thing I will keep in mind is that primary data collection thus takes place is a natural setting such a laboratory, a field, a factory, etc. and the researcher has total control over everything however, in some instances the participants may or may not be aware that they are being studied (Frankfort-Nachmias & Nachmias, 2008).

Primary data have been used in research studies for a long time until recently when secondary data have become popular especially in the social sciences because of rich traditions. Frankfort-Nachmias and Nachmias (2008) noted three basic factors that have contributed to the increasing use of secondary data in the social sciences as

- Conceptual-substantive reasons,
- Methodological reasons, and
- Cost.

Under conceptual-substantive reasons, secondary data may be the only data available for the study of a particular problem e.g. social and political studies due to their nature has to rely on data collected by somebody else. Additionally, secondary data cover many materials, variables, large areas, and a longer period of time than a primary data. Therefore, studies involving time series or understanding patterns through time are better handled using secondary data. Lastly, studies involving comparison within and between groups require very large data that is only feasible with secondary data (Frankfort-Nachmias & Nachmias, 2006).

From methodological point of view, secondary data is reliable, accurate, and replication can be done using it since credibility of a study is enhanced if the similar findings are reported in different and independent studies data (Frankfort-Nachmias & Nachmias, 2006). Additionally, longitudinal studies i.e. studies based on data collected a different point in time can only be done using a secondary data since the ability of comparing current research to one done a decade or so ago is something every investigator wants to do in order to validate the original research. Another added advantage that a researcher gains by using secondary that is the freedom to explore the scope of additional independent variables when testing major concepts. Lastly, secondary data allow the flexibility of (a) increasing the sample size, (b) making sure that the sample is representative of the population, and (c) expansion of the number of observations. From the cost point of view, secondary data is just very inexpensive compared to primary data. In some situations like that of my own study, I will get the secondary data free of charge.

Data Analysis Plan

I will use the Microsoft excel tool and SPSS statistical software tool to do data analysis. The Microsoft excel tool will first be used as data manipulation tool in terms of missing value replacement, exclusion of outliers, formatting of data, centering, and alignment. I will also use the Microsoft excel tool to perform data exploration i.e. getting descriptive statives, normal plot, etc. Thereafter, I will load the clean data into SPSS for further analysis. Since the data will be used for multiple regression, I will subject the data to all assumptions underlying the multiple regression technique. The reason for this is

because every metric that I will compute using that data is a statistic therefore I will make sure there is enough samples size. I will also make sure I am very clear about what each of the metrics that I will compute during the data exploration phase mean. Thereafter, I will export the data into the SPSS software i.e. predictive tool that can be used to analyze the strength of the relationship between variables and can also be used to make predictions about variables.

My null hypothesis for this research question is based on the inference that there is no relationship between regulation, profit margin, leverage, asset turnover, economic condition, and banking system, and return on equity for banks.

H_o – There is no relationship between return on equity earned by banks and regulation, profit margin, leverage, asset turnover, economic conditions, and the banking system.

H_a – There is a relationship between return on equity earned by banks and regulation, profit margin, leverage, asset turnover, economic conditions, and the banking system.

The statistical method that I will use to test these hypotheses is the multiple regression. I chose the regression technique because it a unique tool that is suited for investigating the relationship between a dependent variable and independent variables. Kachigan (1991) noted that the multiple regression coefficient measure the degree of relationship between predictor variables and the criterion variable which is also called the dependent variable. Perhaps the main reason for choosing the regression approach is because of the following added advantages associated with it: These are

- It is used to determine whether or not a relationship exists between dependent variable and independent variables,
- It is used to describe the nature of the relationship, if any, in a form of a mathematical equation, and
- It is used to access the relative importance of the independent variables in their contribution to the variation in the dependent variable.

Perhaps the biggest advantage of choosing the multiple regression statistical technique is because it is readily available in the statistical software tool -- SPSS. One of the best things about the multiple regression technique that make it very powerful and popular is that the result has the following useful statistics – correlation coefficient (R), *R* square, *F* test and *t* test. The *R* is a measure of the correlation between all the independents variable combined and the dependent variable whereas the *R* square is percentage of variance explained in the dependent variable (Azcel, 2012). The *R* square is also a measure of effect size in a multiple regression which is in effect the measure of the practical significance of my independent predictors to the dependent variable in my case return on equity (Urdan, 2010).

The *F* test in multiple regression is used to test multiple correlations and the *t* test is used to test the regression coefficients. The F value produced in a multiple regression with a corresponding *p*-value also conveys the statistical significance of the model outputs (Urdan, 2010). The regression coefficients of the model are also displayed which is used to get a regression equation. Each regression coefficient shows the strength of independent variable to the dependent variable while controlling for other independent

variables. Not only that, the regression out also has standardized regression coefficients which is used to compare the predictive power of each independent variable to the dependent variable (Urdan, 2010).

The independent variables that are categorical were turned into dummy variables. Dummy coding is a way of representing groups by zeros and ones (Field, 2012). The good thing about dummy variables is that they are non-ordered therefore coding of one or zero does not mean one group is higher than the other. As a result, I coded the following independent variables as dummies:

Regulation (Regulated = 0; Not Regulated = 1).

Banking system (Traditional = 0; Shadow =1).

Economic condition (Good = 0; Bad=1)

Mathematically, the regression model is shown in equation 1 below:

$$Y_i = \beta_0 + \beta_1 X_{i1} + \ldots\ldots\ldots\ldots \beta_6 X_{i6} + \varepsilon_i \qquad (1)$$

Where,

Y_i is return on equity for company *i*,

X_{i1} is the regulation of company *i*,

X_{i2} is the profit margin of company *i*,

X_{i3} is the leverage ratio of company *i*,

X_{i3} is the asset turnover of company *i*,

X_{i4} is the economic condition of company *i*,

X_{i5} is the banking system of company *i*,

ε_i is the error term of company *i*.

The dependent variable ROE is one of the strongest and the most reliable measures of company performance is widely used to gauge its economic value add to shareholders. If the ROE of a company is higher than cost of equity capital then there is economic profit. As such, the ROE of a company is the ratio of its net income to shareholder's equity. Mathematically.

$$\text{ROE} = \frac{\text{Net Icome}}{\text{Shareholder's Equity}}$$

The ROE of company is one of the recognized financial ratios that is used to measure the performance of a company. According to Kabajeh, Nu'aimat, and Dahmash (2012), financial ratios are one of the oldest, simple, and practical financial planning tools available. Financial ratios are so old that they were their usage can be traced back to the middle of the nineteenth century were they were the most popular tool used by accountant and financial analysts. Even till today, despite the invention models, they are still being used predominately for planning, making economic and financial decisions (Kabajeh, Nu'aimat, & Dahmash, 2012).

The ROE is also loosely defined as the net profit after tax divided by the total shareholders equity (Kabajeh et al., 2012). An ROE is a key determinant of the growth of a company as such it is affected by the degree of debt that a firm carries. One of the revelations of ROE is that it reveals how efficiency or how well the company is run. Additionally, shareholders of a company relied heavily on the ROE to ascertain how well their own money is being used. According to Kabajeh et al. (2012), if one pays attention to what ROE is, the following can be clear.

- The degree to which management have succeed in maximizing the wealth of the shareholders.
- The degree of allocating the funds of shareholders in the current business and the efficiency of using these capitals in the business.
- The return on shareholders capital i.e. a measure of the company's capacity to remunerate the shareholders.

Kabajeh et al. (2012) also indicated that management at companies divides the factors that affect their overall financial performance into segments. The segmentation is analyzed with the aid of the DuPont formula. The DuPont formula was developed by the then chief financial officer named Donaldson Brown. According to Brigham and Gapenski (1997), the DuPont formula defined ROE as depended on (a) profit margin on sales, (b) total asset turnover ratio, and (c) the use of debt or leverage. Mathematically, the ROE equation is shown as follows:

ROE = Profit Margin * Asset Turnover * Leverage Ratio

$$\text{ROE} = \frac{\text{Net Profit}}{\text{Sales}} * \frac{\text{Sales}}{\text{Assets}} * \frac{\text{Assets}}{\text{Shareholder's Equity}}$$

$$\text{Where Profit Margin} = \frac{\text{Net Profit}}{\text{Sales}}$$

$$\text{Asset Turnover} = \frac{\text{Sales}}{\text{Assets}}$$

$$\text{Leverage Ratio} = \frac{\text{Assets}}{\text{Shareholder's Equity}}$$

The Profit Margin shows how much profit a company makes for every dollar of sales i.e. how much of every dollar a company keeps in earning. It is very useful when comparing companies in the same industry. The Asset Turnover shows how efficient a company is in using its assets i.e. how many dollars of sales a company generates from every dollar of assets. The Leverage ratio shows amount of assets per dollar of shareholder equity investment i.e. how a company finances its assets it holds.

Helfert (2003) on his part stated the DuPont decomposition as

$$\text{ROE} = \frac{TA}{E} * \frac{T}{TA} * \frac{NP}{T}$$

Where TA – total assets,

E – Equity,

T – Turnover,

NP – Net Profit

$\frac{TA}{E}$ – The equity multiplier

$\frac{T}{TA}$ – The total assets turnover

$\frac{NP}{T}$ – The return on sales

The equity multiplier is a measure of the extent to which equity alone finances the total assets of a company therefore the larger this number is indicates a greater proportion of

the total assets is being finance by borrowing and vice versa. The total asset turnover is a measure of how fast or slow a company manages its asset and the return on sales indicates its profit margin.

Helfert (2003), expanded on the DuPont decomposition by proposing using a model to test the three factors that influences an ROE i.e. operational activities, investment activities, and functional activities. Under operational activities, ROE is impacted greatly by operating profit margin which is also impacted by revenue and cost management. The revenue management is also affected by price/rate conditions, actions of competitors, and market potential while cost management is impacted by supply conditions, labor market and cost structure. The effect investment activity on ROE is driven by both current and fixed capital turnover. Fixed asset turnover is determined is largely determined by budgeting and current asset turnover is impacted by claims and debts. As such, financial leverage is the only financial activity that affects ROE.

The decomposition of ROE reveals factors or variables that can be used in a model to track their interdependencies or their combined effect. The only way to determine the degree these factors affect ROE is statistical test them with or without other variables.

Kabajeh et al. (2012), noted that ROE is one of the main criteria used in measuring or deciding the success of a company. The reason for this is because the ROE shows the company's ability to derive gains/profits from the funds provided by shareholders only. Kabajeh et al. (2012), also noted that ROE is closely watched and scrutinized by investors because they used it for financial analysis and stock predictions.

Kabajeh et al. (2012), further noted that ROE also serve as a reliable measure which is used to compare the performance of a company in different time periods or in comparing other companies. Since the ROE is also obtained by dividing net profit by average equity the any changes in the factors that affect net profit also affect the ROE. In additions, there are also external factors such as the state of the economy that also affect the ROE of a company.

As if that is not enough, Kabajeh et al. (2012), also mentioned asset turner over and financial leverage that also affect the ROE of a company. As such, if the cost of doing business reduces then there will be an increase in the ROE of a company. In a related study, Velnampy, Aloy, and Niresh (2012) found that a positive relationship between ROE and debt to equity. Therefore, the size of debt i.e. thus leverage have significant effect on the ROE even though debt on itself is not a problem provided if used efficiently. Velnampy et al. (2012), mentioned that excessive use of debt does not necessarily decrease ROE if the loans obtained are used efficiently and optimally.

Velnampy et al. (2012), argued that there are other factors that affect ROE of private or public companies. Among them are

- Asset turnover;
- Working capital policy;
- Dividend policy;
- Price Coefficient to earnings per share ratio;
- Size of the company;
- The company's risk tolerance; and

- The company's brand.

Laith and Akram (2010), on their part noted that the profitability of a company is dependent these factors:

- Number of employees;
- Balance of payment; and
- The size of the company.

Additionally, Laith and Akram (2010) also fund that number of employees, balance of payment, and the size of the company are positively correlated with profitability, interest rate, budget deficits, and the gross domestic product.

The two other independent variables of my study are the state of the economy and the type of banking system. These are the two dummy variables that I am using in the study. The state of the economy, in this instance is how well the economy is doing. If the economy of the country is growing that could mean businesses will need capital for investing and there is demand for loans and banks can do a lot of business. This means that businesses and turn over their assets more quickly which is a sign of operational efficiency. Business will then earn more profit and thus ROE improves. On the order hand, if the economy is not growing, then the reverse will be true. There will be no demand for loans from banks and that will affect the profit that these banks can make. In such as state the return on equity will be low.

The type of banking system i.e. shadow banking or traditional banking is the key independent variable of my study. The shadow banking system is less regulated compared to the traditional banking system hence can take more risks. I will therefore

expect them to earn more profit if the investments turn out to be very good and vice versa. Therefore, I compared the ROE for both shadow and traditional banks during the time the economy is doing well and during the time the economy is not doing well.

In conduction this research, I set a level of significance $\alpha = 0.05$ which means that I will reject the null hypothesis if the calculated *p-value* from the statistical test is less than this value. The implication of this is that if the null hypothesis is true then there will be no linear relationship ROE and any of the independent variables. On the other hand if the null is rejected then I will fail to reject the alternate and conclude that there is a linear relations between ROE and the independent variables.

Threats to Validity

External Validity

Even though this is not an experimental study I expect no major threats to external validity. Notwithstanding that I followed the steps below make sure any minor threats due to external validity is minimized. According to Stewart (2015), anyone using secondary for research or marketing decisions should consider the following factors

- The purpose of the data provider;
- The data collector;
- When was the data collected;
- How was the data collected;
- What kind of data was collected;
- Does the data relate to other data.

The purpose of the data collector is critical in order to understand the original intent why the data were collected. Knowing this, then I can to decide if this the data is suitable for this particular study. However, data from governmental agency is more reliable that the one from the website of an individual company. Hence, I got the data for this research from SEC website. The data for this study was audited financial data hence there is an independent third party involved. Lastly the financial information data is required to be filed with 60 days at the end of the each year hence this data was consistent with other prior years' data.

The information contains in the annual report of a company is supposed to provide investors all that they need to know about the company in order to make good investment decisions. However, this is not always the case since the information is scattered at different places on the form. In the first place, management use the annual report to highlight the positives of the company while at the same time minimizing the potential pitfalls. As such, I read the whole report to find out all the dangers that might have been hidden. Secondly, only the overview of the primary business the company does is located on the first page. Other businesses that company undertakes are hidden or located different pages and I will have to read the whole report to make sure I get all the information about the company.

In the third place, the same information is repeated on multiple pages for different reasons. I therefore read and understand each page before including the information in the data for the study. The reason for this is make sure the information presented is relevant to my study.

Internal Validity

Missing data. I did not have any issues with missing data for my study since the data came from annual report data required by law to be completed. The financial information in the annual report is audited data by an independent body as required by law. The added requirement that the annual report by signed by a member of board of directors, CEO, and CFO make sure the financial information the report is valid. Notwithstanding that, I used the SPPS software to check the presence of missing values for any of variables that was used in the study. Prior to using SPSS to check the presence of missing values, I used the Microsoft excel software during the data gathering phase to weed out any missing values. I also produced simple summary statistics on every variable and the result displayed in tabular form in the write up of the study.

Dealing with missing values. There are three major ways of dealing with missing values discussed in the existing literature. The three methods are listwise, mean substitution, and simple or multiple imputations (Osborne, 2012). The listwise method is also called traditional method in which all case of missing values are simply deleted. Under the mean substitution method, a group mean or an overall mean is substituted for any missing record since the mean is considered the single best estimate of any variable. Under the third method, the computing software will use various techniques of creating different version of the data and replacing the missing values with one of the versions. I will use the mean substitution method to deal with the missing values in my data since it has more advantages when compared to the other methods (Osborne, 2012).

Limitations of the secondary data. Secondary data, despite its appeal and richness has some major limitations which I guarded against. Notable among them were:
There is a gap between primary investigator that collected the data for a specific purpose and I the investigator who is using the data for the purpose of my study.
Even though access to data is free, the variables of my study are all not in one location hence time and effort is needed to locate them.
Insufficient information about the secondary data is always an issue since the data is designed for a particular purpose. Therefore sources of bias and errors need to be investigated.

Construct Validity

Since multiple regression is my chosen statistical tool, I ensured that the following assumptions under this method are met

- All variable are measured at interval level without error;
- The mean of the error term is zero;
- The variance of the error term is constant;
- The error terms are uncorrelated i.e. there is no autocorrelation;
- Each independent variable is uncorrelated with the error term;
- No independent variable is perfectly linearly to any other variable;
- For each of the independent variables, the error term is normally distributed.

Ethical Procedures

The data for this my study came from secondary sources as noted earlier in the chapter. As a result, there was no ethical concerns as the data collection process that I

will used does not involve survey, interviews, etc. My main concern was the integrity of the data. Since the data collected the SEC is required by law to be free of errors, I am very sure the integrity of the data was not be in doubt. Notwithstanding that, I subjected the data for the requirements of the assumptions underlying the multiple regression statistical process.

Additionally, I only began data collection after obtaining approval from Institutional Review Board (IRB). This is one of the ethical requirements from Walden University on data collection.

Summary

In this chapter 3 which is the methodological section, I reiterated my hypotheses which underpinned this study. I defined the dependent and the independent variables. I discussed how the dependent and the independent variables are selected and used in prior studies that used similar variables. The factors that drive the independent variable ROE needs to be laid out and explained and I did that in this chapter. I also discussed how the various independent variables are derived and how other studies have used them.

I discussed the quasi-experimental design that I chose and more general discussion on the quantitative method. I also discussed the sampling methodology and the sampling procedure that I will undertake. Additionally, I discussed the data collection methods, the data analysis plan, ethical and methodological issues that I faced have been spelt out.

This chapter 3 leads into chapter 4 in which I collected and analyzed data.

Chapter 4: Results

In this study, I examined the relationship between return on equity earned by banks and regulations, profit margin, leverage, and asset turnover, and the banking system. The purpose of this quantitative study was to contribute to the ongoing debate as to whether the lack of regulations results in increased return on equity. I foresaw that a good understanding of this relationship coupled with an understanding of the role banks and the federal government played in the 2008 financial crisis, this study will contribute to positive social change by providing policymakers information regarding the regulation of banks. Researchers have contended in the past that freedom from regulations encourages risk-taking and earning of higher profits, but there is lack of empirical evidence that supports this relationship. As a result, I examined the effect of regulation on the ROE earned by banks, which is yet to be adequately addressed in the literature.

The research question posed in this study addressed the relationship between regulations, profit margin, leverage, asset turnover, and the bottom-line of banks as measured by ROE. The lack of research into the effect of governmental action on the returns earned by banks was instrumental in the choice of regulation and the factors that drive the bottom-line of banks.

I advanced the following hypotheses that I tested for statistical significance. My null hypothesis for this research question asserted that there is no relationship between regulation, profit margin, leverage, asset turnover, and banking system, and return on equity for banks.

H_o – There is no relationship between return on equity earned by banks and regulation, profit margin, leverage, asset turnover, economic conditions, and banking system.

H_a – There is a relationship between return on equity earned by banks and regulation, profit margin, leverage, asset turnover, economic conditions, and banking system.

The statistical method I used to test these hypothesis was multiple regression. The effects of other factors that affect the ROE of banks were controlled to minimize biases. The outcome of the multiple regression statistical analysis is presented in this chapter.

Organization of Chapter 4

This chapter is focused on the discussion and interpretation of the findings from the statistical analyses performed on the collected data. The chapter is organized into four sections:

- Data collection phase, where I describe how the data was collected, the timeframe, other conditions stipulated in the approval to collect data, and data collection outcomes vis-à-vis the plan;
- Descriptive statistical analysis of the collected data, where I discuss the outcome of subjecting the collected data to basic statistical analysis and, based on the outcome of the analysis, considered the relevance of the data for the study;
- Inferential statistical data analysis, where I discuss the findings from the statistical analyses performed based on the hypotheses of the study; and

- Summary of results, where I bring all the findings of the descriptive and inferential analysis together.

Data Collection

IRB Approval for Data Collection

On January 12, 2016, I obtained the IRB's approval for this doctoral study, with the approval number 01-12-16-0340149. The approval was contingent upon my adherence to the procedures described in the application requests, which emphasized strict compliance with ethical requirements for a Walden doctoral capstone. In collecting the data, I was guided by the details of the IRB procedures. I commenced data collection from the various sources after the approval was granted and concluded it on January 15, 2016.

Data Sources

I collected secondary data from one source. The target population for this study was national commercial banks and investment banks located in the United States. Specifically, the population was financial institutions that were required to file financial returns with the SEC and were identified by standard industrial classification (SIC) two-code system 60 and 62. The SIC code is assigned by the U.S. government to identify the primary business of each company and to facilitate the collection and analysis of data. The SEC directors use the SIC code as an identification number during the review of annual reports by companies. Companies belonging to the SIC Code 60 are nationally charted depository institutions engaged in deposit banking or related activities while

those belonging to SIC Code 62 are institutions engaged in purchase, sale, and brokerage securities and also investment activities.

The annual report is mandated by directors at the SEC to be filed by U.S.-based public companies. According to the SEC (2014), annual reports contain corporate information to shareholders who might otherwise not have gotten it. The annual report is also meant to provide the state of the company including a letter from the chief executive officer (CEO) to shareholders detailing the financial data, results of operations, market segment information, new product plans, subsidiary investments, and research development of the company. The annual report Form 10-K also contains information about the company's financial condition and annual financial statements. One good thing about the annual returns filed using Form 10-K is that the annual return for the current year contains summary information about the previous 5 years.

U.S. National Commercial and Investment Banks

Financial data from filed annual reports were available for 1,018 companies registered with the SEC under SIC four digit code 6021, and there were 230 companies with SIC four digit code 6211. I employed two-stage sampling techniques to choose a representative sample. Table 2 presents the composition of the banks that filed annual returns with the SEC and where data were available.

Table 2

Composition of Banks with Form 10-K Filed with SEC

S/n	Type of Bank	No. of Firms	Proportion
1	National Commercial Banks	1,018	82%
2	Investment Banks	230	18%
	Total	1,248	100%

Selection of Sample

In Chapter 3, I described a sample size of 42 banks based on two-stage sampling techniques to choose a representative sample. In the first stage, I conducted purposive sampling to select depository and nondepository institutions that met the following criteria:

- Content: They are banks engaged in the conversion of short-term loans to long-term loans as defined by core functions of a bank i.e. changing short-term loans by lenders to long-term loans for borrowers.
- Extent: Both types of banks are corporations as validated by their annual SEC filings.
- Time: Both types of banks existed during the 5-year period (2003-2007)

In the second stage of sampling, I used simple random sampling methodology to choose a sample of banks from the already selected banks from the purposive sampling.

Inclusion of Covariates in the Regression Model

The research hypotheses were tested using a multiple regression model. The dependent variable ROE is one of the strongest and the most reliable measures of company performance and is widely used to gauge its economic value add to shareholders. If the ROE of a company is higher than cost of equity capital, then there is economic profit. The ROE of a company is the ratio of its net income to shareholder's equity. Five independent variables (regulation, profit margin, leverage, asset turnover, economic conditions, and the banking system) were included in the model. According to Brigham and Gapenski (1997), the DuPont formula defined ROE as depended on (a) profit margin on sales, (b) total asset turnover ratio, and (c) the use of debt or leverage. I controlled for profit margin, asset turnover, and leverage to make sure I was comparing apples to apples. Data were collected on each of these covariates, and their effects on the dependent variable were isolated to permit a reasonable testing of the effect of the regulation on the ROE. Table 3 details the univariate properties of the individual variables.

Table 3

Univariate Properties of the Study Variables

	N	Minimum	Maximum	Mean	*SD*
Asset_TO	42	.035	1.730	.31485	.421185
Lev_Ratio	42	-1.179	21.855	7.99805	5.267489
Profit_M	42	-.191	.366	.15428	.093925
Regulated	42	0	1	.50	.506
ROE	42	-.212	1.457	.17117	.244771

The statistical variations in these variables is explained in the descriptive statistical analysis section.

Plan Implementation Challenges

During the process of conducting this study, I did not encounter any serious challenges that could warrant a drastic change in my quantitative methodology. The only issue I confronted was with my dummy variables (regulation, banking system, and economic condition). Regulation and banking system are similar because the shadow banking system is not regulated while the traditional banking system is regulated. Therefore, coding both of the as indicator variable (1, 0) are just the same. During the data manipulation phase, only these two variables were kept in the model. Because the effect of regulations was the focus of this study, I kept regulation as the independent

variable. The other independent variable (economic condition) was more of control variable. During the data period of 2003 to2007, the economic condition in the United States was very good. All companies selected all reported positive earnings, so the indicator variable would have been the same for all 42 sampled banking units. Therefore, the economic condition variable was controlled for and was not included in the model. The final independent variables used in the study were as follows:

- regulation or regulated,
- profit margin,
- asset turnover,
- leverage ratio.

Determination of Return on Equity

I computed return on equity (ROE) based on the DuPont formula, which defined ROE as depended on (a) profit margin on sales, (b) total asset turnover ratio, and (c) the use of debt or leverage. Mathematically, the ROE equation is shown as follows:

ROE = Profit Margin * Asset Turnover * Leverage Ratio

$$\text{ROE} = \frac{\text{Net Profit}}{\text{Sales}} * \frac{\text{Sales}}{\text{Assets}} * \frac{\text{Assets}}{\text{Shareholder's Equity}}$$

$$\text{Where Profit Margin} = \frac{\text{Net Profit}}{\text{Sales}}$$

$$\text{Asset Turnover} = \frac{\text{Sales}}{\text{Assets}}$$

$$\text{Leverage Ratio} = \frac{\text{Assets}}{\text{Shareholder's Equity}}$$

The profit margin shows how much profit a company makes for every dollar of sales (i.e., how much of every dollar a company keeps in earnings). Profit margin is very useful when comparing companies in the same industry. The asset turnover shows how efficient a company is in using its assets (i.e., how many dollars of sales a company generates from every dollar of assets). The leverage ratio shows the amount of assets per dollar of shareholder equity investment (i.e., how a company finances the assets it holds). Subsequently, I computed ROE by multiplying profit margin by asset turnover and leverage ratio.

Study Results

The independent variables used in the study were regulation, profit margin, asset turnover, and leverage ratio. Among these independent variables, the control variables include profit margin, asset turnover, and leverage ratio. The descriptive statistics of the control variable are shown in Table 4:

Table 4

Statistical Descriptive of the Control Variables

	N	Minimum	Maximum	Mean	*SD*
Asset_TO	42	.035	1.730	.31485	.421185
Lev_Ratio	42	-1.179	21.855	7.99805	5.267489
Profit_M	42	-.191	.366	.15428	.093925

As stated in the hypotheses in chapters one and three, the financial data used for this study were obtained from the publicly available, based on the mandatory regulatory

returns filed by individual banks with the SEC. The annual return data of each firm were pulled for five (5) years (3), from 2003 to 2007. The annual return data is made of some selected financial information from the firm's income statement and balance sheet. The 42 sampled banks recorded average asset turnover ratio of 0.314 between 2003 to 2007. The average leverage ratio for the 42 sampled banks is 7.99 for the period 2003-2007 and the average leverage ratio for the same number of sampled banks was 0.154 during the same period.

Descriptive Statistics of the Dependent Variable

In the null hypotheses, I claimed that the dependent variables profit margin, asset turnover, leverage ratio, and regulations have effect on the bottom-line of both traditional and shadow banks. I defined the bottom-line as return on equity. Table 4.4 below shows the descriptive statistics for these variables.

Table 5

Statistical Description of the Dependent Variable

	n	Minimum	Maximum	Mean	*SD*
ROE	42	-.212	1.457	.17117	.244771

ROE is computed from variables that are captured from form 10-K i.e. annual returns required to be filed with the SEC by publicly traded companies: for my study these are banks. The ROE is computed from profit margin multiplied by asset turnover and leverage ratio. Profit margin is computed from net income and revenue figures: asset

turnover is computed from revenue and assets: leverage ratio is computed from assets and shareholder equity. The average ROE for the 42 sampled banks was 17% for the period 2003 to 2007.

Data Analysis: Evaluation of Statistical Assumptions and Hypotheses Testing

In this section, I explored the SPSS outputs on the models presented in order to assess the level of their compliance with the regression assumptions made in chapter 3. This analysis is organized along the themes of study hypotheses. While testing each model, I evaluated the extent to which the linear regression assumptions were met or violated. The principal of such assumptions includes multicollinearity, homoscedasticity, auto-correlation, linearity, and normality of distribution. I adopted triangulated approach to assess compliance with these assumptions by using plots and statistical numbers for the evaluation.

Hypotheses

The hypotheses of this study is focused on the relationship between ROE and dependent variables of profit margin, asset turnover, leverage ratio, and regulations. My null hypothesis for this research question is based on the inference that there is no relationship between regulation, profit margin, leverage, asset turnover, economic condition, and banking system, and return on equity for banks.

H_o – There is no relationship between return on equity earned by banks and regulation, profit margin, leverage, asset turnover, economic conditions, and the banking system.

H_a – There is a relationship between return on equity earned by banks and

regulation, profit margin, leverage, asset turnover, economic conditions, and the banking system.

In chapters 1 and 3, I specified a regression model in the Equation (1) to test hypothesis: . Mathematically, the regression model is shown in equation 1 below:

$$Y_i = \beta_0 + \beta_1 X_{i1} + \ldots\ldots\ldots\ldots \beta_6 X_{i6} + \varepsilon_i \qquad (1)$$

Where,

Y_i is return on equity for company *i*,

X_{i1} is the regulation of company *i*,

X_{i2} is the profit margin of company *i*,

X_{i3} is the leverage ratio of company *i*,

X_{i3} is the asset turnover of company *i*,

X_{i4} is the economic condition of company *i*,

X_{i5} is the banking system of company *i*,

ε_i is the error term of company *i*.

As discussed under changes to the research study, these independent variables are not included in the final model i.e. banking system and economic condition.

Evaluating the Regression Model

In the first part of this model, I regressed ROE against the regulation and the specified control variables (profit margin, asset turnover, and leverage ratio). Essentially, I entered ROE as the dependent variable. I then adopted hierarchical (blockwise entry) method through the forced entry approach by entering the control variables in a block and the independent variable in another block without following any order. The control

variables were entered all at once as a block, and, later, the independent variable were entered in the second block, also all at once. This strategy was to enable me isolate the effects of the control variables on the dependent variable. Because I made no decision on the order of entry of the variables in either block, all the variables within each block were entered once, thus adopting a forced entry approach. According to Field (2012), a forced entry approach is very appropriate for testing theory.

Running the ROE regression model yielded the model summary detailed in the Table 4.5, showing the extent to which the model was successful in predicting ROE from the independent variables.

Table 6

ROE Regression Model: Model Summary

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.872[a]	.760	.741	.124485	.760	40.171	3	38	.000	
2	.879[b]	.773	.748	.122879	.012	2.000	1	37	.166	2.672

a. Predictors: (Constant), Lev_ratio, Profit_margin, Asset_TO

b. Predictors: (Constant), Lev_ratio, Profit_margin, Asset_TO, Regulated

c. Dependent Variable: ROE

Table 7

Evaluating the ANOVA Values of ROE Model

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.868	3	.623	40.171	.000[b]
	Residual	.589	38	.015		
	Total	2.456	41			
2	Regression	1.898	4	.474	31.422	.000[c]
	Residual	.559	37	.015		
	Total	2.456	41			

a. Dependent Variable: ROE

b. Predictors: (Constant), Lev_ratio, Profit_margin, Asset_TO

c. Predictors: (Constant), Lev_ratio, Profit_margin, Asset_TO, Regulated

Model 1 in Table 6 showed that the linear combination of the control variables was significantly related to the ROE, $R^2 = .76$, adjusted $R^2 = .74$, $F(3, 38) = 40.17$, $p < .001$. This means that the control variables predicted ROE significantly. The control variables in model 1 accounted for 76% of the variance in ROE. This means that the regression model from model 1 accounted for 76% of the variance in the ROE. The adjusted R^2 is a measure of how our model will generalize to a whole population instead a sample. According to Field (2012), the closer this value is to R^2 the better. In model 1, the adjusted R^2 is 74% which is close to 76%.

Model 2 in Table 6 showed that the linear combination of the control variables with the predictor variable is not significantly related to the ROE, $R^2 = .77$, adjusted $R^2 = .74$, $F(1, 37) = 2.00$, $p = .166$. This means that the addition of the predictor variable to the control variable did not predicted ROE significantly. The variables in model 2 accounted for 77% of the variance in ROE. This means that the regression model from model 2 accounted for 77% of the variance in the ROE. The adjusted R^2 is a measure of how our model will generalizes to a whole population instead a sample. According to Field (2012), the close this value is to R^2 the better. In model 2, the adjusted R^2 is 74% which is not very close to 77%. As such, the independent variable regulated did not predict ROE significantly after partialling out the effects of the control variables, R^2 change = .012, $F(1, 37) = 2$, $p = .16$. Based on these results, the independent variable regulations appear to offer little additional predictive power beyond that contributed by the control variables. In spite of this overall level of insignificance, it is important for me to delve into the respective predictability of each of the individual variables in the constituting the model. Field (2012) advised testing of the cross-validity of regression model. Subsequently, I performed this by calculating the adjusted R^2 using Stein's formula:

$$\text{Adjusted } R^2 = 1 - \left(\frac{n-1}{n-k-1} \right) \left(\frac{n-2}{n-k-2} \right) \left(\frac{n+1}{n} \right) (1-$$

The performance of this test showed that the adjusted R^2 calculated was .71 which was close to the SPPS-determined adjusted R^2 of .74 and provided a further testament that the cross validity of this model was good.

Table 7 presented the ANOVA result of a test as to whether the ROE model significantly predicted the outcome better than the mean. When only control variables were included in the model, the ROE was strongly predicted by these control variables, $F(3,38) = 40.17$, significantly at $p < .001$. When both control variables and the predictor variables are included in the model, the ROE was strongly predicted by these control variables, $F(4,37) = 31.42$, significantly at $p < .001$ even though with a reduced F value. These ANOVA results is interpreted to mean that both models significantly improved ROE or the observed marginal improvement resulting from the inclusion of the regulation into the ROE regression model could is not by chance.

Test of Autocorrelation in the ROE Model

According to Field (2012), autocorrelation is an independence error that occurs when two observations have residual terms that are correlated. However, regression analysis assumes that residual terms must not be correlated. Table 6 showed Durbin-Watson statistic as 2.672, providing an insight into the presence or absence of autocorrelation in the data. As a convenient rule, Field (2012) suggested that Durbin-Watson statistic either lying between 1 and 3 or being close to 2 shows absence of autocorrelation. In this model, Durbin-Watson statistic was 2.6 which lied between 1 and 3 but is very far from 2 implying that there is no lack of autocorrelation in the data and autocorrelation exits in the data.

Evaluating the Parameters in the ROE Model

The parameters in the ROE model were evaluated, including the beta and correlation

coefficients. Table 8 presents the summary of the coefficients for each of the variables.

Table 8

Coefficients in the ROE Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-.304	.063		-4.807	.000					
	Profit_margin	1.482	.209	.569	7.098	.000	.623	.755	.564	.983	1.017
	Asset_TO	.444	.062	.765	7.118	.000	.603	.756	.565	.546	1.830
	Lev_ratio	.013	.005	.286	2.662	.011	-.194	.396	.211	.546	1.831
2	(Constant)	-.363	.075		-4.834	.000					
	Profit_margin	1.615	.227	.620	7.127	.000	.623	.761	.559	.813	1.230
	Asset_TO	.402	.069	.691	5.843	.000	.603	.693	.458	.440	2.275
	Lev_ratio	.015	.005	.323	2.955	.005	-.194	.437	.232	.516	1.940
	Regulated	.077	.054	.159	1.414	.166	.202	.226	.111	.489	2.045

a. Dependent Variable: ROE

The ROE model below was depicted by the equation with the substituted coefficients.

ROE= -0.363 + 1.615profit_margin + 0.402Asset_turnover + 0.015Leverage_ratio + 0.077Regulated

From the model, the both the raw and standardized beta values/coefficients were positive implying that any actions that results in higher values might lead to improvement in the bottom-line of both traditional and shadow banks. However, the coefficients of the independent variable regulated did not appear to be tangible, because its *t* value was not

significant, $p>.05$. Given the overall level of significance of the model, one can conclude that regulating banks does not correlate with ROE hence the null hypothesis cannot be rejected in favor of the alternate.

Test of Assumption of Collinearity in the ROE Model

Table 8 also showed the collinearity statistics, which was required to assess the presence or absence of multicollinearity in the data. According to Field (2012), multicollinearity poses a challenge to multiple regressions because as collinearity increases (a) so does the standard errors associated with the β coefficients thereby making the β s less trustworthy; (b) the size of R (i.e., the measure of correlation between predictors and the outcome) is limited or reduced; and (c) the relative importance of each of the individual predictors becomes less noticeable. As a rule of thumb, if the largest variance inflation factor (VIF) is greater than 10, there is evidence of collinearity in the data (Field, 2012). Table 8 showed that the largest VIF was 2.3, implying multicollinearity is not present. Also as a rule of thumb, a tolerance below 0.1 shows presence of a serious problem with collinearity and tolerance below 0.2 equally indicates a potential problem. Table 8 showed that in this data, the lowest tolerance (1/VIF) was 0.44. This further demonstrated that the assumption of absence of multicollinearity was not violated.

Evaluating the Correlation Coefficients in the ROE Model

Table 9

Correlation Coefficients in the Model

		ROE	Profit_margin	Asset_TO	Lev_ratio	Regulated
Pearson Correlation	ROE	1.000	.623	.603	-.194	.202
	Profit_margin	.623	1.000	.052	.053	-.311
	Asset_TO	.603	.052	1.000	-.668	.604
	Lev_ratio	-.194	.053	-.668	1.000	-.559
	Regulated	.202	-.311	.604	-.559	1.000
Sig. (1-tailed)	ROE	.	.000	.000	.109	.099
	Profit_margin	.000	.	.372	.369	.023
	Asset_TO	.000	.372	.	.000	.000
	Lev_ratio	.109	.369	.000	.	.000
	Regulated	.099	.023	.000	.000	.
N	ROE	42	42	42	42	42
	Profit_margin	42	42	42	42	42
	Asset_TO	42	42	42	42	42
	Lev_ratio	42	42	42	42	42
	Regulated	42	42	42	42	42

The Pearson partial correlation coefficient for ROE model is presented in Table 9, showing that no significant correlation was recorded between ROE and all the variables in the model.

Effect size is generally referred to as a standardized measure of magnitude of the observed effect according to Field (2009). As such, in terms of the effect size, Field (2009, p. 79) suggested that correlation coefficients also stand for the effect size of the regression model, with +-.1, +-.3, and +-.5 representing small effect, medium effect, and large effect respectively. Table 9 below showed the effect size of the variables that reported effect in the testing of the ROE.

Table 10

Determination of Effect Size in the ROE Model

Variable	r	Effect Size
Profit_margin	.62	Large
Asset_TO	.60	Large
Lev_ratio	-.19	Small
Regulated	.20	Small

Evaluation of Homoscedasticity and Linearity Assumptions in the Model

In regression analysis it is assumed that at each level of the predictor variables, the variances of the residuals should be constant (Field, 2012). The constancy of the variances in this manner is referred to as homoscedasticity while the lack of it is referred

to as heteroscedasticity. Following Field's (2012) suggestion, I used a scatter plot of ZRSID against the ZPRED which is shown in Figure 7.

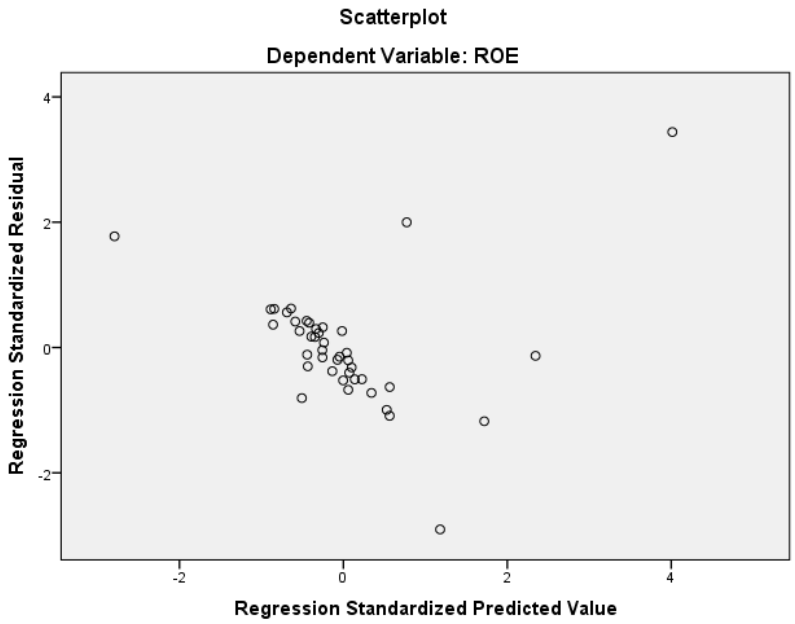

Figure 6. Plot of *ZRESIG against *ZPRED for the ROE multiple regression model. According to Field (2012), the assumption of homoscedasticity is met only when the dots in the plot are random and do not show any clear pattern. The dots in the above figure appear to show a clear patter, so the assumption of homoscedasticity has been violated in this data.

Figure 7 can also be used to test linearity. According Field (2012), if a scatter plot of values of the residuals against the outcome of the predicted values show a clear pattern, then linearity assumption is violated. In this situation, majority of the plots form a clear pattern hence linearity assumption has been violated.

Evaluation of Homogeneity of Variance Assumption in the ROE Model

Regression analysis assumes that variances are homogeneous. Accordding to Field (2012), variances are homogenous if Levene's statistic is significant. Table 10 showed that based on the mean of the distribution, Levenes statistic = 9.66, p = .003 (significant). This implied that the assumption of homogeneity of variances was violated in this data.

Table 11

Levene Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
ROE	Based on Mean	9.668	1	40	.003
	Based on Median	4.547	1	40	.039
	Based on Median and with adjusted df	4.547	1	20.237	.045
	Based on trimmed mean	6.294	1	40	.016

Evaluation of Normality Assumption in the ROE Model

Another assumption of the regression analysis is the normality of the distribution. This is normally tested through the use of histograms. The Figure 8 below depicts the histogram for the ROE model. The histogram showed a normal bell-shaped curve around the histogram, showing that the distribution follows normal distribution with mean of 0 and standard deviation of 1 hence the normality assumption is not violated.

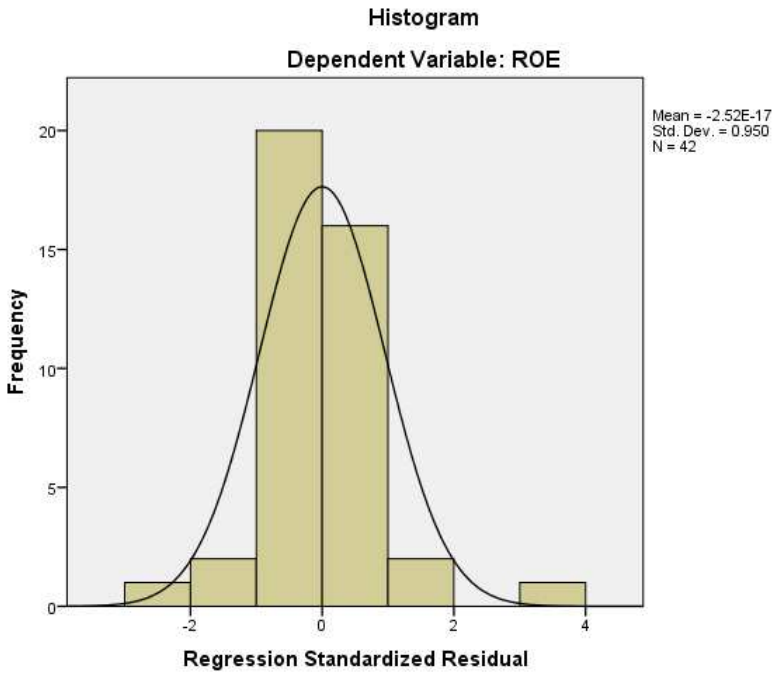

Figure 7. Histogram of normally distributed residuals for ROE model.

The normal P-P plot of regression standardized residual for ROE in Figure 8 showed some variations of the residuals from the regression line. Field (2012) suggested that quantitative test be performed to confirm if such a plot is significantly outside a normal distribution.

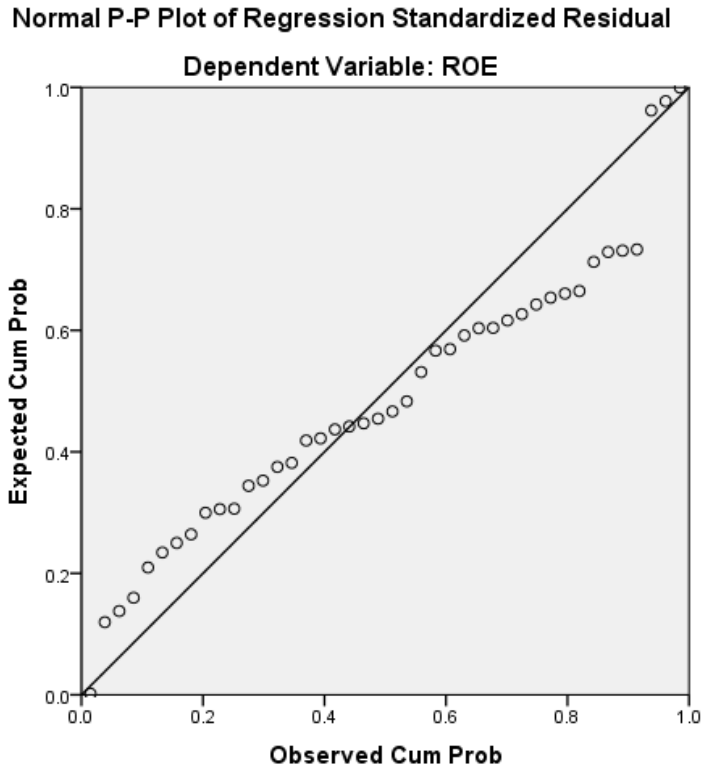

Figure 8. Normal P-P Plot of Regression Standardized Residual of the ROE Model.

The normal P-P plot of regression standardized residual for EBITDA margin in Figure 8 showed some variations of the residuals from the regression line. Field (2012) suggested that quantitative test be performed to confirm if such a plot is significantly outside a normal distribution. I therefore explored two quantitative tests of normality assumption.

Table 12

Test of Normality Using the Standard Scores of Skewness and Kurtosis

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Regulated	.338	42	.000	.637	42	.000
Asset_TO	.308	42	.000	.680	42	.000
Profit_margin	.080	42	.200*	.936	42	.020
Lev_ratio	.144	42	.028	.951	42	.071
ROE	.360	42	.000	.538	42	.000

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

First, in line with Field's (2012) recommendation, a further test of Kolmogorov-Smirnov combined with Shapiro-Wilk test was conducted to evaluate the extent of non-compliance with the assumption of normality of distribution. Table 12 shows the outcome of these two tests. Field suggested that if the statistics of these tests are significant ($p < .05$), then the distributions are not normal, but if they are not significant ($p > 0.05$), then the distributions are normal. Table 12 showed that the statistics of both Kolmogorov-Smirnov and Shapiro-Wilk tests were significant ($p < .05$) for all independent variables except Lev-ratio where Shapiro-Wilk test was not significant. This implied that the distributions were indeed not close to a normal distribution.

Summary

In chapter 4, I presented the results of my research that answered my research questions posed in chapters one, three, and four. The central theme of the research question was to determine if there is any effect of regulations on the bottom-line of traditional and shadow banks.

In the financial service industry especially banking in the US, there are two types of banks i.e. traditional banks and shadow banks. In this context my research question was to what is the relationship between regulation, profit margin, leverage, asset turnover, economic condition, and strategy, and bottom-line of banks (traditional and shadow) as measured by return on equity. Specifically, is there any effect on ROE when all other variables are controlled for except regulation?

The result of my hypothesis testing showed that regulation does not significantly correlate with ROE above the specified control variables. Only 1.2% additional variation in ROE was attributed regulations which was not significant at 5% significant level. Therefore the null hypothesis cannot be rejected in favor of the alternative hypothesis at 5% significant level.

Not surprisingly I found that the control variable have strong and significant influence on the dependent variable ROE. Profit margin had strong predictive influence on ROE because it showed a standardized beta that was significant, $t = 7.12$, $p < 0.001$. Asset turnover also had strong predictive influence on ROE because it showed a standardized beta that was significant, $t = 5.84$, $p < 0.001$. Additionally, leverage ratio also had strong predictive influence on ROE because it showed a standardized beta that

was significant, $t = 2.95$, $p = 0.005$. In terms of correlation, I also found that profit margin and asset turnover were significantly positively related with ROE, $r = .62$ and $r = .60$ respectively, $p < .001$. However, I also found that leverage ratio was negatively related with ROE, $r = -.19$ respectively, $p < .001$ but not significantly.

In chapter 5, I provided a detailed discussion of these findings, with the explanation of the supportive facts on the outcome. I also discussed these findings in the context of the literature and suggested a direction for future research on the topic.

Chapter 5: Discussion, Conclusions, and Recommendations

In this quantitative study, I examined the relationship between return on equity earned by banks and regulation, profit margin, leverage ratio, and asset turnover for both traditional and shadow banks in the United States, using data from 2003 to 2007. The aim of the study was to examine the effect of regulations on the bottom-line of both traditional and shadow banks to determine whether banks should be regulated the same or differently. I chose a quasi-experimental design to examine the relationship between regulations and the return on equity, controlling for variables such as profit margin, leverage, and asset turnover. The independent variable regulation was defined as a key driver of return on equity. The research question was as follows: What is the relationship between regulation, profit margin, leverage, asset turnover, economic condition, and strategy, and the bottom-line of banks (traditional and shadow) as measured by return on equity?

I found that there was a relationship between ROE and the three controlled variables of profit margin, asset turnover, and leverage from the 42 sampled banks. Results also indicated that the hypothesized independent variable regulation did not have any significant correlation with ROE of banks. The implication of this result is that regulating banks differently did not have any significant effect on the bottom-line of both traditional and shadow banks as measured by ROE. This could mean that allowing shadow banks to take more risks while preventing traditional banks from doing so did not provide any added benefits in terms of increase in ROE.

These findings revealed that regulation did not significantly affect the bottom-line of both traditional and shadow banks. Only 1.2% of the variation in the ROE was improved by regulations; however, this contribution was not statistically significant. The known drivers of ROE that were controlled in the model did explain 76% of the ROE, $F(3,38) = 40.17$, $p < .01$, significantly. I provided further explanation of this implication in subsequent sections of this chapter.

In the next section of this chapter, I interpreted the findings of this study in the context of the literature reviewed in Chapter 2. I showed that the findings were consistent with the findings of prior researchers. I also show that these findings diverged from the findings in previous studies. While interpreting these findings, I was guided by the interpretations given by different researchers. The interpretation was in line with the theory of regulatory arbitrage (Gennaioli et al., 2013) which seeks to explain securitization with little or no risk transfer outside the core banking system of both traditional and shadow banking system. This theory holds that distortionary financial regulations help in promoting securitization without risk transfer, and there may be a real probability of earning higher returns because of the extra flexibility (Acharya et al., 2013). This interpretation section is followed by a description of the limitations of the study, recommendations for further research based on previous studies and the current study, and implications for social change.

Interpretation of Findings

Previous researchers contended that freedom from regulations encourages risk-taking and earning of higher profits; however, there was lack of empirical evidence

addressing this relationship. Most of the views about the effects of shadow banking have been the works of seminal papers. The research question I asked was what is the relationship between regulation, profit margin, leverage, asset turnover, economic condition, and strategy, and bottom-line of banks (traditional and shadow) as measured by return on equity. I hypothesized that the control variables were driver of ROE, which was consisted with previous studies. I also hypothesized that regulations affected traditional banks and shadow banks differently. I tested the control variables and later added the independent variable before testing the whole group. The aim was to isolate the effects of the control variables separately. I suspected that if each type of bank was regulated differently, the one with more regulations would take a hit on its bottom-line due to the extra limitations of the regulations.

I found in the test that regulations did not have any significant effect on the bottom-line of banks as measured by ROE. This finding was consistent with Gerding (2012), who argued that freedom from regulations does not affect the bottom-line of banks. Gerding further argued that securitization leads to the efficient allocation of capital that has a large impact on the ROE of banks. The same point was made by Rixen (2013), who found that the shadow banking system has the added advantage of risk diversification through securitization. It was this securitization that was the solution to liquidity issues associated with the traditional banking system. Therefore, because management at traditional banks are permitted to take part in securitization, the effects of regulation became moot. Krugman (2011) made this same point that that even though shadow banks deal with money-market funds, repurchase agreements, and so on, these

instruments function like deposits but without safeguards such as insurance; hence, shadow banks are not less risky than traditional banks and should be regulated as traditional banks.

I observed the effects of the control variables on the ROE to be significant. The control variables, whose effects were separated while analyzing the research question, included profit margin, asset turnover, and leverage ratio. The result of the regression analysis showed that these control variables accounted for 74% all the variations in the ROE. My interpretation of this result is that the control variables play more significant roles in explaining the variations in the dependent variable. This finding is in contrast to points made by Rixen (2013) and Gerding (2012), who claimed that market participants always take advantage of gaps in the existing regulations to realize greater profits. Both Rixen and Gerding supported the idea that the removal of the depression-era statutes was done in an effort to connect commercial and household borrowers to the capital markets to facilitate liquidity.

The findings are also consisted with Gorton and Metrick (2010), who argued that inconsistent regulations were not the core problem in the financial crisis in 2008; repos were. Gorton and Metrick also argued that the 2008 panic occurred due to the fact that depositors in repo transactions with banks (traditional and shadow banks) feared that the banks might fail. If that happened, they would have to sell the collateral to recover their money and possibly at a loss because everyone would be selling at the same time. Because management at both traditional banks and shadow banks take part in the repo

business, regulatory scrutiny or attention should be on how to restructure repurchase markets.

Claessens and Ratnovski (2015) defined shadow banking as a collection of intermediation services in the financial services industry. Claessens and Ratnovski (2015) argued that shadow banking should be looked at from a functional rather than an insightful point of view. From a functional viewpoint, the growth of shadow banking is largely driven by genuine demand for its services and not only by regulatory arbitrage (Claessens & Ratnovski, 2015). My findings are consisted with the findings of Claessens and Ratnovski (2015) in that other factors affect the bottom-line of shadow banks.

The findings from this study did not align with the claim in 1982 by Corrigan, who was at the Federal Reserve, that shadow banks are special because they are the last hope liquidity providers to households, businesses, and financial markets and needed some form of deregulation (as cited in Gerding, 2012). Aspinwall (2008) argued that the best response to the increasing ability of nonbanks to provide the same economic functions as banks is to reduce the regulatory impediments to all banks and to allow them to compete fairly. The evidence from my study did not appear to support this claim because relaxed regulations did not provide any added benefit in terms ROE. Furthermore, Gerding (2012) and other scholars have argued for decades that shadow banks pose the same risks and inflict the same consequences as traditional banks, so regulating these entities might have been the more sensible policy. This view is shared by Engle, Moshirian, and Wong (2015) who stated that the rapid expansion of shadow banking was in response to the increased financial burden on traditional banks than

anything else. In summary, I did not find any significant effect of regulations on the bottom-line of shadow banks and traditional banks.

Limitations of the Study

In this study, I focused on the financial services sector especially traditional and shadow banking system in the United States. Therefore, it would not be appropriate to generalize the findings beyond the United States. There are other limitations that may further constrain the generalizability and trustworthiness of the findings.

The purpose of this study is to examine the relationship between regulations and the return on equity, controlling for variables profit margin, leverage, and asset turnover for both traditional and shadow banks in the United States. The independent variables -- profit margin, leverage, and asset turnover were controlled by making them have similar values between the two banks. Here, I do recognize it may be difficult to have the same exact values for all these other independent variables.

The findings cannot be used to examine the effects of regulations on any other financial ratio. This reason for this is because ROE best reflects the bottom-line of banks in the context of the problem under study. In addition, I planned to use top 100 traditional and shadow banks for this study. However, this could not be achieved because of the restrictions on the time period of 2003 to 2007. There were several mergers and acquisitions during the time period chosen for the study. As a result, I was limited to 80 traditional banks, and not all of them were in the top 100. In addition, I discovered from SEC's EDGAR that not all shadow banks are required to provide the selected financial data on Form 10-K annual returns. In fact, small companies are not required by the SEC

to provide selected financial data as part of their annual filings. The result of this was that the population of shadow banks I sampled was less than the proposed 230. Therefore, I could not achieve my planned randomization, which affected the generalizability of the study.

Next, the study was designed to examine the influence of regulations on ROE. The reason for this is because ROE best reflect the bottom-line of banks in the context of the problem under study in this research. Therefore, the study cannot be replicated to examine the effect of regulations on any other ratio.

Next, data from previous performance of traditional and shadow banks were the only sources of data in this study. Previous performance does not necessarily predict future performance. The economic environment in which previous performances took place are different; therefore, one cannot be confident that management from shadow and traditional banks will perform the same in the future. In addition, data used from these banks are located in the United States. The reason for this is because there are laws in the United States that require banks to file annual returns of their business operations. I did not consider collecting banking data from international countries since annual filing requirements might be different.

Next, the study cannot be reproduced in countries where there is no free and readily available public data. The reasons for this is private data is housed and safeguarded by a reputable government agency in the United States. In addition, because the United States has established laws that govern annual fillings, there is an abundance

of good secondary data. In addition, the study was limited to securitization as the only risk diversification tool. Other forms of risk diversification were not considered.

Another limitation is the data for this study came from the secondary sources. The reason for this is because, secondary data are data were collected for a different purpose than the purpose of this study. As such, using a secondary data for other purposes that it was collected for is risky and a limitation. Additionally, this particular financial data of the banks were extracted from the regulatory returns filed by those banks. Even though this data are supposed to be free of deliberate manipulation by management, this possibility cannot be completely ruled out.

Finally, the adopted design and methodology of the study might potentially constrain the validity of the conclusion and thus limit the extent to which the findings may be generalized or replicated. I adopted a quantitative design to examine the effect of regulations on the bottom-line of banks in the United States. A quantitative inquiry has some well-known limitations. For example, it is used to explain phenomena from the patterns contained in the numerical data, and usually involves deductive testing of the relationship between variables (Creswell, 2009). As such, drawing conclusions merely from the analysis of the numerical data to explain policy decisions is fraught with risk.

Recommendations for Action

As a result of the findings from this study, I recommend a call to action for the following groups: policymakers and regulators with oversight roles over banks. Steps should be taken to subject both traditional banks and shadow banks to the same set of rules to protect the banking system of the United States.

Recommendations for Regulators with Oversight Roles over Banks

The findings of this study revealed that regulations did not have any significant effect on the bottom-line of both shadow banks and traditional banks as measured by ROE. Therefore, calls for regulating both traditional and shadow will get louder. Shadow banking, for that matter less regulated banks was the result of attempts made to expand credit, and thus bolster economic growth and in the process spreading the risk involved hence have almost no requirements to keep reserves (Risks, 2011). As regulators, whose duties are to regulate the banking sector, should take a closer look at existing regulatory conditions to see if there are any other advantages to be gain from treating both the traditional and shadow banking systems differently. The reason for this is because this research reinforced the argument for uniform regulation of all banks in financial markets.

Recommendations for Policy Makers

Even though there is paucity in the literature of the effect of regulations on the bottom-line of banks, the dominant argument in the existing literature is confusion about whether the effect is a positive on or negative one. In this study, I did not find evidence of the significant effect of regulations on the ROE of both traditional and shadow banks. The arguments made in the existing literature were that shadow banking arose because regulators introduced more and more complex capital requirements for traditional banks (Bouveret, 2011). This action incentivized financial institutions (especially traditional banks) and led to the movement of some financial activities outside the traditional banking system. The direct result is this is the growing importance of shadow banks since the industry views more and more complex rules not doing much but encouraging

regulatory arbitrage (Bouveret, 2013). However, the results from this study did not find any evidence to support these arguments.

The financial services industry, being one of the backbone of the US economy is considered to the most regulated part of this industry. Interestingly, the two types of the banking system are regulated differently. The traditional banking system is heavily regulated while the shadow banking system is not. The result of this research showed that policy makers need to equally apply the same rules to both traditional banks and shadow banks. The perceived presence of favoritism in terms of regulations governing shadow banks did not result in any benefits in term of the ROE of the sampled banks. As such, policy makers need treat both types of banks the same to make sure tax payers will not be on the hook again should things go bad in the economy. If the lessons from the 2007 the financial crisis are any guide and as well as the reasons documented in papers written after the crisis that placed the blame on the several types of short term debt arrangements that were initially received as safe and "money-like" but later found to be imperfectly collateralized, then actions must be taken to equal the playing field (Gordon & Metric, 2010).

In the US, regulating banks has always been at the forefront public policy issues in the broader economy. Since its inception various policies from the government been aimed to provide a regulatory structure that ensures the existence of such a safe medium of exchange and avoids systemic banking crises (Gordon & Metric, 2010). In the course of performing these duties policy makers are may not be very clear about un-intended consequences. The findings of this study showed that not all not all policy decisions

provide a good outcome. Since shadow banking as now surpassed traditional banking, policy makers may want consider supporting the shadow banking system in terms of providing government guarantees.

Recommendations for Further Research

My first recommendation for further study is a recommendation to myself about further dissemination of this study. I strongly believe that it is when other scholar practitioners become aware of one's study then the further that can go. In this regard, I intend circulating my research findings through presentations at academic and professional conferences. I will also be publishing this study in the print media especially social science and finance journals. Lastly, I intend to publish this study through the UMI Dissertation Publishing on ProQuest,

In chapter 2, during the literature review, I mentioned that research studies on the effect of regulations on the bottom-line of banks are very scare. This gap in the existing literature was of the reason why I undertook this study. The very few earlier studies in the existing literature examined the role of regulators in the financial industry as whole thereby making very difficult to compare them current study to them. This study is unique in itself because it was focused on the banking sector of the financial services industry exclusively. The results of the study showed that regulations had no significant effect on the bottom-line of banks as measured by ROE. The paucity of expansive research in the area of regulations of ROE makes it difficult for anyone to take a definite position on this. Therefore, before a final position can be taken on the findings from this research, further research is recommended in order to expand the scope of this study. The

period of data used in this study i.e. 2003-2007 barely enough to reach a robust conclusion. In addition to expanding the scope of the research, other future researchers might extend the study to include other variables that distinguishes traditional banks from shadow banks i.e. the mix of portfolio of assets, geographic location, etc.

Additionally, due to abundance of mergers and acquisition of banks, the line between shadow banking and traditional banking is becoming very blurred in recent years. A potential future research will be to explore cleaner method of identifying banks that are heavily regulated compared to those that are not. This would provide opportunity to triangulate the research with potential to yield a more reliable and more complete finding.

Future researchers may want to replicate the study in the banking sector of other countries or using some other forms of methodology to measure the independent variable ROE. Another idea will be to explore using other ratios for measuring bottom-line of banks such return on investment (ROI), return on assets (ROA), etc.

Finally, other scholars have also argued in the past that central banks and financial regulators have been too late to investigate the effect of monetary policy on shadow banking. Perhaps, an ideal extension of this study is investigate what is the overall effect of money policy on banking altogether.

Implications

This study will undoubtedly contribute to the existing body of knowledge but it also had the potential to create a positive social change. In this section, I articulated potential impacts for positive social change.

Positive Social Change for Management at Banks

In this study, I demonstrated what management at both traditional and shadow banks could consider as the drivers of the bottom-line of their companies. I showed in the study that the main independent variables such as profit margin, leverage ratio, and asset turnover are positively related to ROE. This means that management could consider adopt practices that enhances higher values of the afore-mentioned variables. This information could assist business strategy by ensuring that investment in products and factors that drive the bottom-line.

Positive Social Change for Banking Regulators and Lawmakers

The lessons learned from prior financial crises indicated that market participants always take advantage of any gaps in the existing regulations in order to realize profits (Rixen, 2013). This is the view supported by those in favor of the removal of the depression era statues that were done in an effort to connect commercial and household borrowers to the capital markets in order to facilitate liquidity (Gerding, 2011). It is therefore not a surprise that the shadow banking system, largely made up of non-depository banks such as hedge funds, investment banks among others whose primary function is also credit transformation just like traditional banks are not regulated as traditional banks (Bouveret, 2011). The result of this is arrangement is an unfair system where traditional banks are heavily regulated than shadow banks even though both perform almost similar functions. The hypotheses was that the less regulated will have positive impact on ROE. The results from is study contradicted that assumption.

In this study, I also demonstrated that banking regulators and lawmakers need to understanding what is the result of regulating banks the way they are being done now.

I showed in the study the main independent variables such as profit margin, leverage ratio, and asset turnover are positively related to ROE. I also showed that the bottom-line of banks as measured by ROE is not significantly affected by regulations. This information could assist banking regulators and lawmakers in crafting new laws or polices when it comes to how banks should be regulated. Lack of regulation, according to (Rixen, 2013), is an important incentive for shadow banks because they could use various regulatory arbitrage opportunities to realize greater returns. In addition, shadow banks enjoy unrestricted possibilities of leverage investment (Rixen, 2013). As it turned, lack of regulation did not have any significant effect on ROE. The lack of regulation did not help as shadow banking activities as they are exposed to similar financial risks as traditional banks (Varialle, 2012).

Positive Social Change for the Academic Community

The outcome of this study helps to update the existing literature on regulating the banking sector, not only because of the current data it provided, but also in terms of the gaps that were addressed. As I stated in the chapter 1, there is lack of paucity of research in the area of how regulations affect the ROE. I believed this study helped to bridge this gap, by providing insights into how the various selected financial data from the annual reports that companies file affect ROE of banks in the United States. The study will also spurn an interest into how balance sheet and income statement information from companies can be used to compare one company to the other.

Conclusions

This dissertation study is very unique and bold in the sense that it investigated something that was discussed a lot in the prior literature but there was not any thorough study done about it. The study investigated the effect of the government regulations on the bottom-line of both traditional and shadow banks as measured by ROE in the US. The reason for this is because, the primary goal of regulations imposed is to protect the average investor from loss of their savings and investments from unnecessary risk-taking while earning interest (Rixen, 2013). However, not all banks are subjected to same regulation - only traditional banks are regulated severely. Yardan (2014) described the unique contribution of the traditional banking system as depositors and borrowers need an intermediary to be a custodian of information and at the same bridge the gap between their different maturity levels in the financial instruments. Due to this unique function, the government wanted to make sure customers of the traditional banking system are protected and hence heavy regulation burden.

To conduct this study, I examined the annual reports that are required to be filed by both traditional and shadow banks. I examined independent variable that have been known to be the drivers of ROE. My independent variable was regulation which is categorical: that way both traditional banks and shadow banks are put together in the same data. I subjected the both the traditional banking system and the shadow banking systems to the hypotheses test during the multiple regression process.

From the results of the study, I found that regulations did not have any significant correlation on the bottom-line of banks. With shadow banking commanding assets close

to $15 trillion in 2011, if the economy of the United States slows down then investors will lose and their losses could bring down the whole economy as happened during the 2008 recession (Ricks, 2014). One way of limiting such possibility is to regulate shadow banks the same way traditional banks are regulated.

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