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An Analysis of Investments by Multilateral Development Banks in Central America

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This is to certify that the doctoral study by

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Abstract

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Master, University ICADE, 2001

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

Multilateral development banks (MDBs) are under increased pressure to justify their allocation of donor resources. These funds help produce growth in developing regions such as Central America (CA), where wealth inequality limits individuals' access to basic services and increases the prevalence of crime and corruption. MDB leaders are not always confident the allocation of limited resources creates optimal value. The capital asset price model (CAPM) was the theoretical framework of this correlational study. Archival data consisting of annual reports and audited financial statements were used to draw a sample (N = 66) of USD $4.857-asset valued loans made by MDBs between 1995-2013 in 7 CA countries. Regression analysis was used to determine the significance of relationships between the independent variables including the risk-free rate of return (R_f), volatility of a project (β_p), and expected return on the market (R_m) and the dependent variable, the expected return (r_p) used by MDBs. No evidence of a statistically significant relationship between the expected return of individual loans (adjusted for risk-free rate, volatility, and market return) and the expected return used by MDBs was found using correlational analysis. Findings from multiple regression analysis indicated that the expected return used by MDBs underperforms risk-adjusted market expectations. Study findings may help MDB leaders to promote business development and social welfare in CA through private investments, which may result in positive social change.

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Dedication

I would like to dedicate this study to my beautiful wife, Ana Guissella, for her love, backing, patience and encouragement, my son José Isaias for his love, and Helena (Discalced Carmelite Nun) for her prayers. I would not have been motivated to pursue this dream without them. Their love kept me inspired.

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This study would not have been completed without the help of many caring and supportive individuals. To my mother, Josefina, thanks for raising me, being my advocate, and teaching me to be strong. To my wife, Ana Guissella, you have provided encouragement throughout my educational journey, especially during times when I could not find the strength to continue. To my son José Isaias, you have provided me love, especially during hard times. Thank you, Dr. Mayer, for your persistent and helpful reviews of my work, as well as your continuous encouragement. I would also like to thank Dr. Diala and Dr. Ewald who provided timely and helpful feedback to ensure my work was of high quality.

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Section 1: Foundation of the Study

The primary role of banks is to efficiently allocate investments including lending for public infrastructure and industry, as well as capital projects for small and medium enterprises (Organization for Economic Co-operation and Development [OECD], 2011; Rösch & Kaserer, 2013). The specific objective of multilateral development banks (MDBs) is to distribute investment resources to provide optimal growth for bank and creditors (Torre, Feyen, & Ize, 2013). Investment decisions rest on the trade-off between risk and return, which requires comparing the future returns of investment alternatives (Javid, 2014). Assessing future returns requires an understanding of investment risk factors (Beyhaghi & Hawley, 2013; Javid, 2014; OECD, 2011; Torre et al., 2013; Virlics, 2013).

Background of the Problem

Amid the financial crisis that began during the second half of 2008, governments and international banking systems were compelled to provide rescue packages to bolster the financial systems of emerging market countries (Hardie & Howarth, 2013). To correct liquidity problems in developing countries, such as those in Central America (CA), which have limited financial and economic power, MDBs had to provide investment policy guidelines. According to Hardie and Howarth, these guidelines define the parameters for investment decisions to meet overall return and risk objectives (Franco & Gerussi, 2013; Hardie & Howarth, 2013; OECD, 2011).

MDBs such as the World Bank and subregional banks such as the Inter-American Development Bank (IDB), the Central American Bank for Economic Integration

(CABEI), and Corporación Andina de Fomento (CAF), are autonomous financial institutions that have been created by sovereign states, which are their equity owners (Ranis, 2011). Goals for the banks include (a) providing technical and financial assistance to developing countries in order to foster economic growth and social development, (b) funding large public infrastructure and other development projects such as industry, (c) providing loans tied to policy reforms including grants and loans at below-market rate interest rates, and (d) fighting the effects of corruption on economic growth (Hardie & Howarth, 2013; Nelson, 2012; Ranis, 2011; Weil, 2012).

Problem Statement

MDB leaders make decisions about allocating scarce financial resources between public and private sectors that are competing for medium and long-term capital project funding (Nair, 2013). According to Salomon (2012), during the 2008 financial crisis, MDBs provided $222 million in financing projects such as public infrastructure and private businesses in order to foster economic growth in CA. A lack of understanding of risk on the part of MDB managers when estimating project value sometimes results in negative effects for business projects; that was the general business problem for this study. The specific business problem was the lack of understanding of some MDB managers of the relationship between risk-free rate, volatility, and market and expected returns for their CA loans.

Purpose Statement

The purpose of this quantitative correlation study was to examine the relationship between the risk-free rate, volatility, market return, and expected return used by MDBs for CA loans. The independent variables included risk-free rate of return (R_f), the volatility of a project (β_p), and the expected return on the market (R_m). The dependent variable was the expected return (r_p) used by MDBs. The study population consisted of approximately 3,000 business project loans that were made by MDBs in Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Belize, and Panama and that had a total asset value of approximately USD$4,857 billion. Wealth inequality in CA limits access to basic services and increases the prevalence of crime and corruption. This study may lead to positive social change by providing guidelines for bank managers, investors, and policymakers who share an interest in developing countries.

Nature of the Study

Researchers typically use one of three methods (qualitative, quantitative, or mixed methods) when conducting their studies (Sekaran & Bougie, 2013). I conducted this study using the quantitative methodology. Quantitative methods are the chosen method of researchers who are interested in the relationship between numeric variables (Chincarini, 2013). I believe that use of a quantitative method was appropriate for my study because I sought to determine the relationship between three independent variables and a dependent variable. The qualitative method was not appropriate for this study because qualitative research aids with understanding the unique interaction in a particular situation and understand the experiences of participants. Researchers using mixed methods combine quantitative and qualitative approaches (Garcia & Zazueta, 2015). A mixed method was not preferred because the goal of this study did not require the qualities of both approaches when collecting and analyzing data.

A research design is a blueprint for the collection, measurement, and analysis of data based on the research question undergirding a study (Sekaran & Bougie, 2013). According to Sekaran and Bougie, the different types of quantitative research designs include correlational, experimental, and descriptive. I chose a correlational design because I wanted to measure the strength and direction of the relationship between more than two variables. Correlation provides a measurement of the intensity of a relationship between predictor variables and a dependent variable (Sekaran & Bougie, 2013). In an experimental design, a researcher administers an intervention to subjects who have been randomly into a control and test group; he or she then manipulates the predictor variable(s) in order to study the reaction on the dependent variable (Boslaugh, 2013; Tang & Zhang, 2013). An experimental design was beyond the scope of the research because data manipulation is outside of the scope of the study. The objective of descriptive research is to collect data describing the characteristics of persons, events, or situations (Tang & Zhang, 2013). Descriptive research is either qualitative or quantitative and may involve the collection of quantitative data such as industrial production, sales figures, or demographic data (Sekaran & Bougie, 2013). A descriptive research design was not appropriate for this study because the aim of the research was to examine the extent of a relationship rather than visually describe data.

Research Question

The overreaching research question for this study was, what is the relationship between the risk-free rate, volatility, market return, and expected return used by MDBs for CA loans? Independent variables included the risk-free rate of return (R_f), volatility of a project (β_p), and the expected return on the market (R_m). The dependent variable was the expected return (r_p) used by MDBs. I also sought to answer two subquestions:

RQ1: What is the difference between the expected return (r_p) adjusted by (R_f, β_p, and R_m) and the r_p used by MDBs?

RQ2: What is the relationship between the expected return (r_p) adjusted by (R_f, β_p, and R_m) and the r_p used by MDBs?

Hypotheses

I tested the following null and alternative hypotheses:

$H_0$1: The expected return (r_p) adjusted by (R_f, β_p, and R_m) is no greater than the r_p used by MDBs in CA.

$H_1$1: The expected return (r_p) adjusted by (R_f, β_p, and R_m) is greater than the r_p used by MDBs in CA.

$H_0$2: There is no statistically significant relationship between the r_p adjusted by R_f, β_p, and R_m and the r_p used by MDBs in CA.

$H_1$2: There is a statistically significant relationship between the r_p adjusted by R_f, β_p, and R_m and the r_p used by MDBs in CA.

Theoretical Framework

I used the capital asset pricing model (CAPM) to frame my study. The CAPM is a centerpiece of modern financial economics. Sharpe (1964), Lintner (1969), and Mossin (1966) developed this model. The basic implications of the CAPM is the required return adjusted for nondiversifiable risk (Brown & Walter, 2013; Ghapanchi, Tavana, Khakbaz, & Low, 2012). I viewed CAPM theory as appropriate for my study because the theory is a precise prediction of the relationship between the risk of an asset and the expected return (Fama & French, 1993). In my doctoral study, I examined how risk affects the expected return of loans issues by MDBs. The CAPM equation includes a dependent variable, the expected return (r_p), and three independent variables, which include the risk-free rate of return (R_f), the volatility of a project (β_p) defined as the beta coefficient, and the expected return on the market (R_m) defined as the market risk premium (Berk & DeMarzo, 2013).

Operational Definitions

Country risk: Associated with investing in a foreign country, (Hayakawa, Kimura, & Lee, 2013).

Coefficient of variation (CV): The relative magnitude of the standard deviation as compared to the mean, or expected value (represented as a percentage; Trafimow, 2014).

Informal sector: An informal sector describes components of an economy lacking a regulatory structure, such as a street vendor (Khamis, 2012).

Internal controls: Internal controls are process put in place by management to mitigate risks related to financial reporting, operations, and regulatory compliance (Wang & Huang, 2012).

Lorenz curve: The Lorenz curve is a measurement of the relationship between the percentage and total income during a given year (Piros & Pinto, 2013).

Political risk: Political risk or corruption is the uncertainty encountered by investors. Corruption has a disincentive effect on investment because it increases the risk on economic and financial risk, discouraging investors to make investments in such politically risky countries (Khan & Akbar, 2013).

Project volatility (beta coefficient): The Project's volatility is a financial indicator of the riskiness of an asset's returns, as compared to the riskiness of general market returns (Diers, Eling, & Linde, 2013). A project's volatility of 1 indicates the same risk as the general market; a project's volatility lower than 1 is less risky, and a project's volatility higher than 1 is more risky than the market (Diers et al., 2013).

Risk-free discount rate: Risk-free discount rate is the discount rate applied to an investment considered free of credit risk, such as the interest rate of government bond from a developed country (Bianconi, MacLachlan, & Sammon, 2015).

Risk premium: The risk premium is expected return on the market, and includes the additional return required by investors over the risk-free discount rate to compensate for the risk associated with the investments (Diers et al., 2013).

Assumptions, Limitations, and Delimitations

Assumptions

According to Kirkwood and Price (2013), assumptions are statements accepted as true or certain by a researcher. Included in the study are several assumptions. My first assumption was that business projects loans made by MDBs in CA are intended to promote economic and social change. My second assumption was that MDB banks rely on specified economic and financial policies prior the disbursement of money. My final assumption was the validity of public financial information provided by MDBs in CA and bank managers can determine risk levels and make decisions with the information provided by agency rating.

Limitations

Limitations are restrictions or restraints imposed on the findings as by law, restrictive weakness, or lack of capacity (Jukna, 2013). The first limitation in this study was the lack of statistical and financial information provided by governments and central banks in CA. The second limitation for this study was volatility, business uncertainty, inflation, interest rate, country risk, and external debt along with political uncertainty in CA. I collected public historical financial data from annual reports and audited financial statement from MDBs, IMF, OECD, Standard & Poor's, and U.S. Department of the Treasury. A third limitation to this study is that my historical financial data may not allow me to predict future events. The existence of a relationship does not prove causality (Arrawatia, Misra, & Dawar, 2015).

Delimitations

According to Kwiatkowska (2013), delimitations are the actions taken by a researcher when determining the limits or boundaries of a study. The first delimitation of this study related to the population that I used. The study was an examination of a random sample project loans made by MDBs in CA from 1995-2013 with an asset value of USD $4,857 billion. Results are bound by the population examined. The second delimitation of this study stemmed from the geography of the study. The loans in the population applied only to CA countries. The third delimitation stemmed from lending institutions that I included in my study. These institutions included the World Bank, the Inter-American Development Bank, CABEI, and Corporación Andina de Fomento.

Significance of the Study

The results of this study may be helpful for explaining the importance of risk when assessing busing investment options. Assessing future asset returns requires an understanding of investments risk factors (Javid, 2014). Fama and French (1993) suggested there is a relationship between the risk of an asset and its expected return. Understanding how this relationship applies to the specific business problem of the study may contribute to the success of MDBs and help fulfill the mission of these banks.

Contribution to Business Practice

This results of this study might help MDBs to reduce gaps in business practices including (a) helping MDBs incorporate a financial risk criterion on business loans in CA, (b) developing processes to evaluate project investment in quantitative terms, (c) developing strategies to estimating the discount rate and expected return of investments, and (d) contributing to ensure projects are economically and financially viable in CA.

The CAPM model was the tool for this study because of the practical application to MDBs. According to Torre et al. (2013), large bank institutions, including MDBs, can calculate expected return or cost of equity using CAPM in order to determine the expected return of investment required in those investments. The cost of capital or expected return on the market for taking risk of making investments is the required rate of return a company must achieve in order to cover the cost of generating funds in the marketplace (Gasparini, Sosa-Escudero, Marchionni, & Olivieri, 2013; Torre et al., 2013).

Implications for Social Change

In strictly economic terms, social change traditionally defines the capacity of a national economy to generate and sustain annual increases in social indicators such as literacy, schooling, health conditions, and services, and the provision of housing (Todaro & Smith, 2011). The results from this study might help MDBs banking investment operations to promote business development and social welfare in CA through private investments, financial and business stability, rule of law, and property right (Todaro & Smith, 2011). Simpasa, Shimeles, and Salami (2015) stated MDBs are part of a multidimensional process to help developing countries involving major changes in business and national institutions. Opazo, Raddatz, and Schmukler (2015) added MDBs have to back project investments to boost to the welfare of developing countries through expanding employment and increasing business in CA. The results of this study might help MDBs investment analysts reach conclusions about business risk in CA along with identifying in the early stage of the project, a systematic calculation of risk-adjusted present value to determine whether to accept or reject a project.

A Review of the Professional and Academic Literature

This section includes a review of the professional and academic literature related to my investigation. Palfreyman (2012) noted that the quality of a literature review depends on the selection of available documents on the research topic, which contain information, data, and evidence written from a particular standpoint to fulfill certain aims or express views on the nature of the research topic and theoretical framework. In my literature review, I include published work from practitioners and scholars about CAPM and MDBs.

In conducting my review of the literature, I searched using EBSCOhost, ProQuest, Thoreau, ERIC, ABI/INFORM Global, Google Scholar, and Ulrich's Periodicals Directory. I also reviewed statistics from federal and governmental agencies and information posted on professional association websites, bibliographic databases, and abstract databases. The search terms that I used included *multilateral development banks, Central America, economic development, financial internal controls, CAPM, and risk management*.

I incorporated 250 sources in this study. Of these, 216 (86%) were published within 5 years (2012-2016) of my expected graduation in 2016. The percentage of peer-reviewed sources is 91%, and the number of peer-reviewed sources in the literature review is 131. Many of these sources are seminal works. Incorporating them helped me in providing a background and technical foundation to this study.

Capital Asset Pricing Model

I used CAPM theory as a theoretical framework for my study. The CAPM calculation includes the risk-free rate, plus a premium consisting of the market returns plus and adjustment called beta, or nondiversifiable risk (Brealey, Myers, & Allen, 2014). According to Brealey et al., the use of CAPM helps investors in calculating the required rate of return, or expected return, for an investment. The model includes a measurement of volatility in the calculation of return (Breatly et al., 2014). To calculate the expected return using the CAPM equation, an individual needs the following information: (a) the risk-free rate of return (R_f), (b) the project's volatility (β_p), which is defined as the beta coefficient, and (c) the expected return on the market (R_m), which is the market risk premium (Berk & DeMarzo, 2013).

According to Berk and DeMarzo (2013), the risk-free rate is the interest rate paid on investments providing a guaranteed return backed by the guarantee to pay on maturity from the federal government. The risk-free rate provides a benchmark for measuring the risk level of other investments. The market risk premium is the excess return or expected return, which is defined as the required rate of return on an investment over and above the risk-free rate (Breatly et al., 2014). The higher the risk premium, the riskier the investment; conversely, the lower the risk premium, the less risky investment (Breatly et al., 2014). The market risk premium is the additional return necessary to compensate investors for the risk they bear. The risk premium using CAPM is the difference between the return on the market and the return on the risk-free rate (Berk & DeMarzo, 2013). The project's volatility (i.e., beta coefficient) is a financial indicator of the riskiness of an asset's returns as compared to that of general market returns. A volatility of 1 means that the [investment] has the same risk as the general market; a volatility lower than 1 indicates that it is less risky while a volatility greater than 1 indicates that it is more risky (Diers et al., 2013).

Assumptions of the CAPM include the following: (a) all investors are single-period decision makers who wish to maximize their expected utility or terminal wealth and whose choices among portfolios depend on the expected return and standard deviation of the probability distribution of the expected returns, (b) all investors agree on both the expected return and standard deviations of all assets and also agree on covariance of returns between all pairs of assets, (c) all investors can borrow or lend unlimited amounts of money at the risk-free interest rate, (d) there are no tax implications to the decision, (e) all investments can be bought or sold without delay or difficult and without transaction costs, (f) no investors hold a large enough portfolio to individually affect prices of investments by buying or selling, and (g) the quantity of investments are fixed (Wang & Chen, 2012).

Historical development of CAPM. CAPM is a theory used by researchers to define the relationship between expected risk and expected return (Fama & French, 1993). The model is grounded in the assumption that investors demand higher returns for taking higher risks (Roulet & Blundell-Wignall, 2013). Lintner (1969) developed CAPM theory to compare or correlate individual asset returns with market returns. CAPM is a useful tool for investors to use because the model incorporates a measurement of risk (Dayala, 2012; Michelfelder, 2015; Nazarova, 2013; Papavassiliou, 2013). Sharpe and Lintner (1964) used the CAPM framework in order to calculate and analyze investments based upon risk. Botshekan, Kraeussl, and Lucas (2012) said that CAPM is a measure of cash flows with a risk-adjusted rate of return. The model takes into measures asset risk to nondiversifiable risk called market or systematic risk (Botshekan et al., 2012). Botshekan et al. stated that there is a relationship between company size and cash flow risk for small companies. By contrast, for larger companies, the cash flow risk is more symmetric.

The relevant risk for an investment is systematic risk (or market-related risk) because diversification may eliminate nonmarket risk. In the CAPM framework, the relationship between an investment's return and its systematic risk is called the security market line (Ghapanchi et al., 2012). Brown and Walter (2013) stated that the CAPM theory is based on the following principles: (a) investors seek high expected return and low standard deviation; (b) investors seek investment offering the highest risk premium to standard deviation; and (c) investment quality depends on expected return, standard deviation, and correlations (Bernardo, Chowdhry, & Goyal, 2012; Jan & Ou, 2012; Stewart, 2013; Tabak, 2014). Ghapanchi et al. (2012) showed that investors use the CAPM in order to evaluate the expected return and to manage the level of risk on investments and projects. CAPM theory deals mainly with systematic and market risk on investments (Ghapanchi et al., 2012).

CAPM is an important tool that is used to analyze the relationship between risk and rate of return. The primary conclusion of the CAPM is that the relevant riskiness of an individual investment is its contribution to the overall risk of a well-diversified portfolio (Berk & DeMarzo, 2013). According to Berk and DeMarzo, the theory determines the expected return of a project as follows:

$$r_p = R_f + \beta_p (R_m - R_f) \quad (1)$$

where

- $r_p =$ expected return to find the required rate or rate on an investment/project,
- $R_f =$ risk free rate of return,
- $\beta_p =$ volatility (beta coefficient), and

- R_m = expected return on market.

Ghapanchi et al. (2012) stated there are two kinds of risk in the CAPM model: unsystematic risk investment, which can be controlled through diversification, and systematic risk, which results from risk outside of the firm's control such as interest rate or discount rate. Volatile investments have greater potential for profits or losses than investments with stable prices (Koutmos, 2012). Koutmos stated the CAPM is a measurement of the relationship between the market risk (beta) of investment and its expected return. Beta is a key component of CAPM, which calculates the cost of equity or expected return (Bongaerts, Gremers, & Goetzmann, 2012). According to Bianconi et al. (2015) and Dempsey (2013), the cost of capital or expected return in CAPM represents the required discount rate for an investment. Required rates of return are calculated by the use of the regular equation for the CAPM. If the order of two investments is switched, the one with a higher beta is considered more risky (Bianconi et al., 2015; Dempsey 2013).

The higher a beta for a company is the higher is the cost of capital and the higher the discount rate and expected return, the lower value placed on the future cash flows (Dempsey, 2013). Beta can impact a company's asset valuation (Bianconi et al., 2015; Guochang, 2013). According to Demiroglu, James, and Kizilasllan (2012), CAPM is used to measure the investment´s required expected return. The CAPM is a theory that incorporates the expectations of shareholders and external financing providers as the opportunity cost to invest in a project rather than to invest in other assets to equivalent risk (Demiroglu et al., 2012).

CAPM is an extension of Markowitz's portfolio theory. However, Sharpe (1964) and Lintner (1969) independently contributed to the development of CAPM. Dempsey (2013) stated CAPM provides insight into unsystematic, firm-specific risk. The relevant risk (or, systematic risk) measure for any risky asset is its covariance with the market portfolio. Investors seek a tradeoff between having no diversifiable risk and expecting a certain return (Dempsey, 2013).

Investors demand a premium for bearing risk. The higher the risk of an investment, the higher its expected return must be to induce investors to invest in it (Çelik, 2012). Çelik claimed the CAPM calculation for the rate of return on investments takes into account the market risk. The use of CAPM aids investors in evaluating the present value of cash flow streams. However, investors struggle in determining the relevant variables that impact cash flow streams (Çelik, 2012). Table 1 and 2 provide a demonstration about how the CAPM evolution was from the static to dynamic the model, and start from Markowitz mean-variance algorithm (Çelik, 2012).

Table 1

Theoretical Development of CAPM (Static Model)

Static Model	Originator(s)
Markowitz Mean-Variance Algorithm	Markowitz (1959)
Sharpe-Lintner CAPM	Sharpe (1964), Lintner (1969)
International CAPM	Solnik, Adler, & Dumas (1974)
Arbitrage Pricing Theory	Ross (1976)
The Fame-French Three Factor Model	Fama & French (1993)

Note: CAPM = capital asset pricing model. Adapted from "Theoretical and Empirical Review of Asset Pricing Models: A Structural Synthesis," by Ş. Çelik, 2012, *International Journal of Economics and Financial Issues,2*(2)*,* p.144.

By diversifying into different classes of assets, investors can mitigate the effects of volatility on the preservation of their capital (Berk & DeMarzo, 2013). According to Berk and DeMarzo, the CAPM provides an equation to determine the return required by investors to willingly hold any particular risky assets as a part of a well-diversified portfolio. A risk-free return involves investing in U.S. Treasury bills (or, T-bills). This debt is virtually free of the risk of default. The risk premium is proportional to the excess market return with the constant of proportionality given by the beta of the individual risky asset. Excess is the term used because it is the additional return resulting from the riskiness of common stock, which is then interpreted as a risk premium. The beta measures the responsiveness of an asset to movements in the market portfolio (Berk & DeMarzo, 2013). Add concluding sentence.

Table 2

Theoretical Development of CAPM (Dynamic Model)

Dynamic Model	Originator(s)
The Intertemporal CAPM	Merton (1973)
Production Based CAPM	Lucas (1978)
Conditional CAPM	Jagannathan & Wang (1996)

Note: Adapted from "Theoretical and Empirical Review of Asset Pricing Models: A Structural Synthesis," by Ş. Çelik, 2012, *International Journal of Economics and Financial Issues, 2*(2)*,* p. 144.

The cost of capital is the rate of return that a business might earn if leaders choose another investment with equivalent risk. The opportunity cost of the fund used as the result of an investment decision (Berkman, 2013). Berkman stated the analysis of the cost of capital, which is also a so-called expected return, is a significant subject to scholars and practitioners in the frame of CAPM. According to Berkman, cost of capital refers to the interest cost of company debt and equity. It is the minimum return necessary for new investments. Using the model, an investor accepts an investment if the return on capital is greater than the cost of capital related to an alternative investment with an equivalent risk (Berkman, 2013; Bianconi et al., 2015).

The expected return/cost of capital is essential for investors to be able to (a) parameterize managerial incentive schemes, (b) evaluate financial assets, and (c) evaluate the quality of investments (Arrow & Lind, 2014; Warusawitharana, 2013). The improper use of the cost of capital could mean accepting an inadequate investment without an adequate return on capital (Mamun & Mishra, 2012; Torre et al., 2013; Warusawitharana, 2013).

The CAPM and capital budgeting. The capital budget is an outline of planned investments in assets, and capital budgeting is the whole process of analyzing investments/projects and deciding which to include in the capital budget (Berk & DeMarzo, 2013). Berk and DeMarzo described capital budgeting as the process managers use to make decisions about whether long-term investments or capital expenditures are worth pursuing by the organizations (Larrabee & Voss, 2012). The CAPM aids with finding the rate of return for a project or investment. If an investor compares two projects, the one with a higher beta is the project considered riskier (Berk & DeMarzo, 2013).

The CFOs can compute the CAPM in capital budgeting as the process for evaluating, comparing, and selecting projects to achieve maximum return or maximum wealth for stockholders. Stock price change is an example of the measurement of wealth maximization (Berk & DeMarzo, 2013; Brealey et al., 2014). All stages of the capital budgeting and investment project decisions are important because investors do not make investments in vacuum; long-term investments and the embedded capital expenditures are in the strategy of a company with the goal of wealth maximization of shareholders along with the risk-return tradeoff (Roper & Ruckes, 2012).

The way in which a bank budgets capital can affect the market risk of the bank, corporate risk, or both (Roper & Ruckes, 2012). Although one investment may be riskier than another, it is difficult to develop a quantitative measure of investment risk (Roper & Ruckes, 2012). According to Dhaene, Tsanakas, Valdez, and Vanduffel (2012), risk in capital budgeting is another word for uncertainty and instability. An investment is risk-free if the return is stable and reliable. Investors usually think of the Treasury bill, which is a U.S. government security, as a risk free investment, mainly because the return is certain and guaranteed (Dhaene et al., 2012). Investments are the allocation of scarce resources; thus, scarce capital allocation is rational only if the present value of the future cash flows is greater than the value of the resources sacrificed (Dhaene et al., 2012). Capital allocation principles are based on the marginal contribution of each business and are some of the most important and essential corporative decisions. If the decision is wrong, the allocation is a mistake and investment risk could jeopardizethe future of the company (Dhaene et al., 2012).

The primary goal of financial management is to maximize the investments, not to maximize accounting measures such as a net income. However, accounting data do influence investment price, and to understand why a company is performing a specific way and to forecast the future, investors should evaluate the accounting information reported in the financial statements (Imegi & Nwokoye, 2015). Imegi and Nwokoye suggested capital budgeting captures multiple dimensions of the adjustments of firms. If the return on capital is not sufficiently high to regenerate the capital laid out, then, the investment is lower than the cost of capital, and the investment does not add value and wealth to the shareholders (Imegi & Nwokoye, 2015).

Capital budgeting decisions are a constant challenge to all levels of CFOs. Ghahremani, Abdollah, and Abedzadeh (2012) stated capital budgeting decision making involves identifying and valuating projects with the purpose of selecting an investment with a high company's wealth impact. According to Ghahremani et al. (2012), capital budgeting involves major multiyear investments with a high degree of uncertainty. Rossi (2015) found investments are costly and can cost billions of dollars; thus, investments require project cash flows streams with a suitable return so the future of the company is sustained (Andrés, Fuente, & San Martín, 2015; Wolffsen, 2012).

Alternative methods of evaluating project investments. The CAPM was the theory I used to frame my research. However, I considered other theories to help frame project valuation. According to Roper and Ruckes (2012), in the context of capital budgeting, there are alternative methods of project valuation, such as net present value (NPV), average rate of return (ARR), weighted average cost of capital (WACC), real option, and economic value added (EVA). The internal rate of return (IRR) is a special case of NPV in which IRR is the discount rate with a NPV to zero. While NPV and IRR are similar, there are cases where the results display divergent project recommendations (Roper & Ruckes, 2012).

Decision makers need information on what risks to take; the more important the decision, the greater the need. All business leaders keep accounting records to aid in making decision (Magni, 2014). Magni suggested ARR involves simple accounting techniques to determine project profitability. This method of capital budgeting is perhaps the oldest technique used in business. The basic idea is to compare net earnings against initial cost of a project by adding all future net earning together and dividing the sum by the average investment (Magni, 2014). According to Cheng, Gao, Lawrence, and Smith (2014), accounting income as reported using Generally Accepted Accounting Principles (GAAP) is not a satisfactory method to evaluate investment profitability. Cheng et al. (2014) suggested a better measure of corporate fiscal success is the EVA which incorporates the cost of capital and equity in the measurement of income.

Capital budgeting decisions include costs and benefits spread out over several time periods. This leads to the need to determine the time value of money as well as risk (Abdul Khir, 2013). According to Abdul Khir, the NPV of the future cash flow of a project less the initial investment of the project, and the IRR is the discount rate with a NPV equal to zero. These measurements derived from the time value of money; the difference in value between money today and money in the future discounted by an annual interest rate (Abdul Khir, 2013). The results of the two methods may yield different results when comparing long term projects (Pierdzioch & Rülke, 2013).

The basic principles of capital budgeting are applicable when there is a risk of inflation as well as when the risk of inflation in negligible. When inflation is possible, future cash flows may differ not only in their timing but also in the purchasing power (Pierdzioch & Rülke, 2013). According to Pierdzioch and Rülke, inflation and gross domestic product (GDP) growth are two the most important macroeconomic variables used by the NPV to define the behavior of cash flows stream. The GDP is the key indicator used to evaluate the health of a country's economy, and defined as the market value of all final goods and services produced within a country in a given period of time (Pierdzioch & Rülke, 2013). Pierdzioch and Rülke defined inflation as the increase in the general price level of goods and services in an economy in a year. The CFOs worry about the effects of inflation on investments because inflation reduce cash flow expectations (Pierdzioch & Rülke, 2013). D'Espallier, Huybrechts, and Schoubben (2013) stated projecting cash flows stream depend on probability related to the growth of the inflation. The measurement of future inflation rates is essential to forecast future cash flows stream because of the impact inflation has on financial and economic behavior related to an investment (D'Espallier et al., 2013). When the inflation increases, the real value of expected cash flows decreases; thus if the analyst does not adjust for inflation risk, the NPV, and IRR may be artificially high (D'Espallier et al., 2013).

Pierdzioch and Rülke (2013) claimed is unrealistic to evaluate an investment without the effects of inflation on cash flow stream. This effect is Fisher's effect**:**

$$r = (1-K)\,(1-\alpha) \qquad (2)$$

Where the real discount rate (*r*) is the combination of nominal rate (*K*), and expected inflation rate (α). The IRR and the NPV are the most widely methods used by financial analysts to evaluate long-term investment projects (Javid, 2014). Javid showed that the NPV compares the present value of a project's future cash flows to its initial cost, and the IRR used in capital budgeting measure of the rate of profitability. The manager must consider risk and uncertainty when dealing with these long-term investments (Javid, 2014).

Cost-benefit analysis is a basic tool of investment analysis in which the actual cost of various investment decisions weighed against potential benefits (Hoffman, 2013). Hoffman claimed cost-benefit analysis focuses primarily on analyzing projects with the purpose of making public and social investments. The cost-benefits is supported by the concept of opportunity cost, namely, the value of the best alternative forgone, in which a choice needs to be made between several mutually exclusive alternatives with the same limited resources, the cost benefits valuation, so-called cost-effectiveness, is not expressed in profitability terms (Hoffman, 2013; Yang & Gao, 2012).

In some instances an investment project may require the use of some scarce resources available to the firm (Yang & Gao, 2012). Yang and Gao found the United Nations (UN) developed a method for evaluate projects called The UN Industrial Development Organization (UNIDO). The UNIDO is a comprehensive framework to evaluate investment projects as an opportunity cost (shadow prices). This method connects to the Little-Mirrlees method by including opportunity cost. Both methods use prices to correct market imperfections, but with some differences. While the Little-

Mirrlees method expresses the evaluation of projects in terms of prices in foreign currencies, UNIDO recommends the evaluation of projects in terms of domestic currency (Sharma & Kumar, 2014). The World Bank follows a procedure to evaluate investments using four general phases: (a) project identification, (b) project preparation, (c) project evaluation, and (d) project realization supervision (Hoffman, 2013).

Value is the defining dimension of measurement in a market economy (Sharma & Kumar, 2014). Companies invest with the expectation of future growth (Hoffman, 2013). Sharma and Kumar (2014) suggested EVA is a better measurement of economic success as compared to net income. EVA has some similarities with the NPV, but it is a different form of analysis for project valuation in corporate finance (Parvaei & Farhadi, 2013). EVA is the profit earned by the company less the cost of financing (Parvaei & Farhadi, 2013; Sharma & Kumar, 2014).

The EVA is an internal management performance measure used to calculate and compares net operating profit to cost of capital; it is the value created by any investment or portfolio investments (Sharma & Kumar, 2014). Sharma and Kumar suggested EVA measures the profit earned to recover the value of the capital invested and explains the market value changes on investment because EVA always discounts investments to the net present value. EVA is also useful to planning investment process (Chittenden & Derregia, 2013; Torriti, 2012). Sharma and Kumar (2014) stated EVA has become an alternative approach to measure corporate financial performance. EVA aligns business performance with organization’s objectives (Sharma & Kumar, 2014). There are various indicators to calculate a firm wealth, including (a) earnings or return on investment, (b) market share, (c) cash-flow returns on investment (CFROI), (d) EVA, and (e) discounted cash flow to present value (Kryukova, 2014). Limarev, Limareva, Zinovyeva, and Usmanova (2015) claimed EVA is the most optimal performance to evaluate a firm's wealth or to calculate its profitability investments. Limarev et al. found EVA is a key indicator to evaluate the expected return and to adjust operates profit after taxes. EVA and discounted cash flow (DCF) have the same conceptual theoretical basis to calculate investment or to valuate a firm's wealth (Limarev et al., 2015).

Company leaders can use insight the capital budgeting and the WACC to understand the effect of leverage on the cost of capital for a new investment within a firm. If company leaders financed with both equity and debt, then the risk of its underlying assets will match the risk of a portfolio of its equity and debt (Torriti, 2012). Torriti calculated the WACC by determining the cost of each source of capital financing and weighting these costs according to the corresponding importance of the capital source. Although the WACC is used as a guideline to judge the relative merits of individual investments, in many cases each project should be analyzed separately; if necessary, the discount rate should be applied to measure its profitability and it should reflect its own specific risk rather than of the overall WACC (Yang & Gao, 2012). When the cost of capital for different investments has been determined, the next step is to calculate the WACC for firms with a mixture of debt and stock in their capital structure (Yang & Gao, 2012).

The WACC represents the expected return on an investment or portfolio investment (Saha & Malkiel, 2012). Prior to calculating the WACC, it is essential to calculate the cost of equity and cost of debt using acceptable financial techniques such as the CAPM or EVA (Xin'e, Ting, & Yuan, 2012). Value creation is the investment gains in excess of capital cost (Xin'e et al., 2012).

The capital cost and the capital structure by Modigliani and Miller works on many assumptions, but it is connected with the WACC as a simply an algebraic manipulation to combine the cost of equity and cost of debt to reflect the capital structure on firm's wealth or investment (Grüninger & Kind, 2013). According to Arabzadeh (2012), one of the most important business process tasks for companies is the calculation of rate of return for investing. Arabzadeh claimed the WACC and CAPM, are the most appropriate techniques to calculate investment connecting to market value because WACC and CAPM comprises both of the cost of equity and the cost of debt as a percentage to the total firm capital structure (Arabzadeh, 2012; Larrabee & Voss, 2012).

Larrabee and Voss (2012) demonstrated corporate decision making has improved through the increased prevalence of real option analysis. Javid (2014) claimed there are three factors into real options analysis including (a) uncertainty about cash flows, (b) irreversibility of investment, and (c) the timing of project initiation. Real option analysis helps managers focus on the value of managerial investment flexibility because real option analysis captures the value of being able to make critical decisions at the initiation of the investment and throughout the life of an investment as well as extend simplified NPV analysis to consider uncertainty cash flows and strategic thought about when and how much to invest in a project (Larrabee & Voss, 2012).

The financial crisis of 2008-2009 with soaring insolvencies and the devaluation of assets in the financial sector of the United States and Europe, reached a high scenario of uncertainty following the bankruptcy of many investment banking (Larrabee & Voss, 2012). Larrabee and Voss stated the effects of globalization, uncertainty, and deregulation are generating a more volatile business environment; managers have to make decisions on investments using tools more consistent with the current environment. Real options to evaluate projects are an appropriate tool in order to apply a more volatile context (Larrabee & Voss, 2012).

Rival and Alternative Theories

Decision making is a business activity at the heart of management responsibility (Aliev, Pedrycz, & Husoynor, 2013). Aliev et al. claimed the assumption of a management role places an individual in the mainstream of an organization´s decision-making activity with authority to make decisions and to organize. To the extent assumptions are not the result of constraints imposed from outside, all of the actions of an organization are, explicitly or implicitly, the result of management decision making (Aliev et al., 2013). Aliev et al. argued all organizations need to improve their decisions making. This need arose because organizational leaders face a scarcity of resources and the need to make the most effective use of available resources. Both private and public sector organizations face competition, and issues such as consumer safety, pollution, and employment practices frequently raise public concern over the degree of social responsibility demonstrated by organizations in their decision making (Aliev et al., 2013).

The behaviorist tradition stands in contrast to the psychodynamic framework in two important aspects; behaviorists discount the internal working of the mind and consider only observed and measured elements (Fryback, 2005). Fryback stated theories based on behavioral decision making are related to normative models and incrementalism. Normative models and incrementalism are decision making processes based upon the organization having a set of goals and objectives: managers are trying to achieve profitability, growth, gaining market share, and excellence in service to customer (Fryback, 2005). There are different theories based on the behavioral decision making process. In this study, I considered two behavioral decision making processes: the structure of unstructured decision model theory, and incrementalism theory (Fryback, 2005).

The structured of unstructured decision model theory. Mintzberg, Duru, Raisinghani, and Theoret (1976) provide a study of 25 strategic decision process drawn from a wide spectrum of organizations, including manufacturing, service, and government agencies. Based on this field study, the authors identified a basic structure, or shared logic, underlying the decision making of the organizations in their handling of unstructured decision. Three main decision making phases are: (a) identification, (b) development, and (c) selection (Mintzberg et al., 1976). Mintzber et al. found the identification phase concerns decisions recognition, the process by which situations require a decision making response come to be recognized.

Simulations include opportunity cost, the cost of a potential benefit if the organization did not respond (Mintzberg et al., 1976). Mintzberg et al. found the greatest amount of activity is in the development phase. This phase leads to the development of one or more possible solutions to meet the problem or crisis, or elaborates the choices for exploiting an opportunity (Mintzberg et al., 1976). The phase of selection typically is a multistage process, involving progressive deepening of the investigation of alternatives. Three routines make up the selection phase of the decision process including screening, evaluation-choice, and authorization (Mintzberg et al., 1976).

Incrementalism theory. Decision making often takes place over a considerable period during which an acceptable solution emerges. The incremental view of decision making is from the work of Lindblom (1959), who described two approaches: a rational comprehensive method (the root approach) and the method of successive limited comparisons (the branch approach). Following the root approach, decision maker identify the relevant goals to the decision making and the trade-offs between goals; the extent to which attainment of one goal compensates for lack of achievement or sacrifice of another goal (Lindblon, 1959).

Under this approach, the decision maker needs extensive knowledge relevant to the problem and a range of alternative solutions (Lindblom, 1959). Lindblom explained that under the branch approach the decision maker only identifies and considers a few alternatives, those readily at hand and similar to projects already implemented. Lindblom recommended the branch approach as a practical way of decision making for complex problems, claiming it is superior to a futile attempt at a more comprehensive consideration of alternatives and goals.

Logical incrementalism. A study of decision making by McCann and Quinn (1982) identified the decision-making process similar to the branch method but with a more proactive approach. McCann and Quinn included interviews with executives from a number of large companies with recent experience. Decision making is a process directed and developed by the executives of companies in a conscious and purposeful manner (McCann & Quinn, 1982).

In the companies studied by McCann and Quinn, the decision centers on the executive who has a broad vision of what they are trying to achieve through the decision. The decision made in a context where significant information necessary for making the decision does not exit. The novelty of the decisions made ensures the inability of prediction with certainty. Consequently, the precise form the decision should take cannot be determined at a single point in time but has developed over the time and through the building up of experience (McCann & Quinn, 1982).

Independent Variable: The Risk-Free Rate of Return

The risk-free rate is the interest rate paid on assets with a sure, stable, and reliable return, like U.S. Treasury bills backed by the federal government's guarantee to pay on maturity. The risk-free rate in the CAPM theory corresponds to the risk-free rate at which investors can both borrow and save (Arabzadeh, 2012). According to Bianconi et al. (2015), while the U.S. Treasury notes are free from default risk, the notes are subject to interest rate risk unless the investors select a maturity equal to investor investment horizon. The CAPM to allow for different investment horizons, and the risk-free rate investors choose should correspond to the yield for an average horizon. The vast majority of large firms and financial analyst report using the yield of long-term (10 to 30-years) bonds to determine the risk-free rate (Bianconi et al., 2015).

Independent Variable: Project's Volatility (Beta Coefficient)

The beta of a portfolio is the weighted-average of the betas of the investment in the portfolio (Berk & DeMarzo, 2013). Berk and DeMarzo claimed having identified a market proxy, the next step in implementing the CAPM is to determine the beta, which measures the sensitivity of the market, this is, market risk. Since beta captures the market risk of an investment, as opposed to its diversifiable risk, it is the appropriate measure of risk for a well-diversified investor (Fama & French, 1993). According to Çelik (2012), CFOs estimate beta on the investment's historical risk. Many data sources provide estimates of beta based on historical data. Typically, these data source estimate correlations and volatilities from two to five years of weekly or monthly returns and use the S&P 500 as the market portfolio (Çelik, 2012).

Independent Variable: The Expected Return on the Market (Risk Premium)

The next input in the CAPM formula is to determine the risk premium (market return). Rieger (2012) showed that the historical market return is measure by looking the total market value of a stock exchange or index (such as Dow Jones Corporate Bond Index) over a given period. According to Rieger, a risk premium is the expected rate of return of an investment/project over and above the risk-free rate. Because long-term government securities mature years from now, they have a higher risk premium than one-year government notes. This kind of risk rating helps investors to measure the relative time risks of different assets. The higher the risk premium, the riskier the firm or the asset. Conversely, the lower the risk premium, the less risky the firm or asset (Berk & DeMarzo, 2013; Rieger, 2012).

Dependent Variable: The Expected Return

The expected return conceptually is the marginal cost of equity equal to the return required by shareholders. Investors commonly use CAPM to approximate the expected return to evaluate business projects and investments (MacDonald & Koch, 2012). According to Botshekan et al. (2012), the expected rate of return is the future receipts investors anticipate receiving for taking the risk of making investments. No investments, if the expected return from an investment fall below the required rate of return. If certain investments return more than the required rate of return, then invest (Botshekan et al., 2012).

According to Brealey et al. (2014), companies must earn a minimum rate of return to cover the cost of generating funds to finance investments. The goal of CFOs is to achieve the highest efficiency and profitability from investment projects and at the same time, keep the cost of the funds the company generates from various financing sources as low as possible. In other words, the cost of capital is the rate of return (cost) a company must pay to investors to borrow money (Brealey et al., 2014).

The Role of MDBs in Developing Countries

MDBs are financial institutions providing financial support and professional technical advice for economic growth, and social development activities in developing and poor countries. The memberships of these banks include developing countries and developed donor countries institution (Prada, 2012). The term MDBs typically refers to the World Bank Group, and regional development banks including the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, and the IDB. MDBs have their own independent legal and operational status. A number of Sub-Regional Banks classified as MDBs. Among these are banks such as CAF; CABEI; East African Development Bank and West African development (Prada, 2012).

Regarding the required role played by MDBs in developing countries there are different point of view and theories from academic and practitioner. According to Culpeper (2012), the purpose of MDBs includes reducing poverty, economic growth, financial sustainability, and social development in developing and poor countries. MDBs accomplish these goals through (a) direct contributions for capital investments, (b) callable capital (membership agree to provide funds, but only to avoid a default on a borrowing or payment under a guarantee, and (c) borrowing through world capital markets (Culpeper, 2012; Simpasa et al., 2015). The role of MDBs should support the economic infrastructure with the purpose of solving the perpetual weaknesses in poor countries, including low savings, lack of access to capital, with the resulting stultifying effects on economic growth and social development (Culpeper, 2012).

MDBs are international financial institutions which finance economic and social development projects in developing countries, MDBs primarily fund their operations and programs either from capital markets or provided or by governments of member countries (Culpeper, Shimeles, & Salami, 2015). The positive impact of MDBs is critical in CA, with more than 60% of citizens living in poverty (IMF, 2013).

Nanwani (2013) explored three different models of MDBs, the first model was dominated by nonborrowers such as the World Bank, a second model is controlled by borrowing countries, e.g. CAF or the CABEI, and finally, a third model where control is more evenly split between borrowers and non-borrowers such as IDB. The study showed how MDBs reacts under specific economic conditions. As a general trend, the CAF and IDB has inclination to lend money under normal economic conditions, while during economic crisis the World Bank increased lend money significantly more than CAF. The IDB also lends money during economic crisis, but remain relatively at the same level like CAF (Nanwani, 2013).

Investments made by MDBs in developing countries. Spending in a country takes many forms. Economists divide GDP into four components: (a) consumptions, (b) investment, (c) government purchases, and (d) next exports (Tierney et al., 2011). According to Tierney et al., the foreign assistance provided by MDBs helps develop the otherwise be nonexistent infrastructure within a poor country. Since 1945, wealthier countries have allocated more than $4.9 trillion to developing countries through MDBs or aid foreign for the purpose of helping the poor countries to out of poverty. Yet, about 1 million official development projects and activities over 66 years have brought little certainty about the scope, purposes, or effects of development finance (Tierney et al., 2011). Tierney et al. claimed since 1973 total development assistance in developing countries in constant dollars per year has nearly quadrupled, jumping from $46 billion in 1973 to $176 billion in 2008. This growth is the result of both traditional donors allocating more aid and MDBs.

During the global financial crisis in 2008, the World Bank reacted by increasing lending after the crisis began, and most of this lending went to middle-income countries rather than to the poorest countries (Cammack, 2013). Cammack showed that the key to understanding the impact of the global financial crisis in Latin America and the Caribbean and how MDBs such IDB, the World Bank and others is to help to developing countries to access to low cost of capital within the capital markets.

Building a new-generation of MDBs is today an imperative in order to redefine their mission and goals at the beginning of the 21 century (Culpeper et al., 2015). The new generation of MDBs must be an impact mainly in governance, accountability, transparency, nonbureaucratic, and low transaction costs (Cammack, 2013). According to Schiffrin (2015), past economic and financial crises have shown MDBs can play a basic role when private financing dries up. The capitalization of the World Bank and other regional development banks with the purpose of acting like a cushion for the consequences of the crisis as well as to enhance capacity and operations to support developing countries is only an example of the essential role played by MDBs in developing countries. Due to the reduction of private capital for developing countries during crises the main roles of MDBs is to facilitate financing during crises (Schiffrin, 2015).

Corruption and the role of MDBs in developing countries. The elimination of corruption is important for development for several reasons. Honest governments may promote growth and sustainably high incomes (Hansen, 2012). According to Hansen, the effects of corruption fall disproportionately on the poor and are a major restraint on their ability to escape from poverty. This is perhaps the most compelling reason for emphasizing the elimination of corruption and improvement of governance as part of a strategy from MDBs. MDBs have to ensure the appropriate use of funds (Hansen, 2012).

Blackburn (2012) defined corruption as the abuse of authority to make personal gains. There are many different shapes and forms including payment of a bribe, the embezzlement of public funds, submission of fraudulent information, misuse of power by political leaders, and the illegal profiteering by bureaucrats (Blackburn, 2012). According to Blackburn, the concern among academics, scholars, practitioners, and policy makers is the relationship between public sector corruption and economic development, as well the importance of well-functioning institutions for the successful growth and development of economies. The World Banks (2013) measured corruption in poor and rich countries between 2006-2010, the calculated the transparency perception index (TPI) which ranked countries in terms of perceived levels of corruption on a decreasing scale from 10 to 0. Poor country TPI ranking ranged between 1.5-3.6, and rich Country TPI ranged between 6.9-9.7.

Otáhal (2014) identified corruption from the perspective of public ownership and suggested private ownership as a solution to corruption because it discourages entrepreneurs from rent-seeking. Corruption is a phenomenon inherent to political institutions, public ownership and cultures (Otáhal, 2014). Deregulation and simplification of rules reduce corruption and encourage entrepreneurial innovation (Otáhal, 2014). The World Bank, for example, identified corruption as the greatest obstacle to economic growth and investments, social development and poverty reduction, and has given priority to anti-corruption initiatives for improving the quality of governance in developing countries (Bauhr, Charron, & Nasiritousi, 2013). The concern is corruption within state institutions such as public officials (politicians, bureaucrats, and legislators) holding unique positions of power as well as responsibility, thus, the abuse of power which can cause significant and long-lasting damage of socioeconomic development (Bauhr et al., 2013).

In order to combat fraud and corruption in the operations and lending, the leaders of five leading MDBs (the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, the Inter-American Development Bank and the World Bank) signed an agreement, aligned with national legislations such as the U.S. Foreign Corrupt Practices Act or the UK Bribery Act, by commercial organizations doing business in developing countries (Seiler & Madir, 2012). Seiler and Madir claimed to combating fraudulent and corrupt practices more efficiently, MDBs have to apply the same rules imposed by the U.S. Foreign Corrupt Practices Act or the UK Bribery Act prior to lend money to developing countries (Seiler & Madir, 2012).

Corruption commonly understood as the abuse of judicial and legislative power, as well as public office for private gain (Seiler & Madir, 2012). According to Seiler and Madir, this is the subject of a rapidly growing between academic and practitioner literature in political science and economics. Seiler and Madir further explained how corruption is a useful instrument of the rich to sustain and increase inequity. First, high levels of inequality create an institutional environment which favors those with income to spare. This, in turn, may lead the rich to question the political, and state's legitimacy and to circumvent laws and regulations with greater frequency. Corruption eventually leads to the unequal access of goods and services (Seiler & Madir, 2012).

The fight against corruption, bribes, and nepotism is one of the main issues within the context of Latin America (Subasat & Bellos, 2013). According to Subasat and Bellos, government misbehavior can lead to the country losing the ability to borrow money. Staats and Biglaiser (2012) suggested developing country governments should develop independent and separate executive, legislative, and judiciary powers to effectively control corruption. Staats and Biglaiser claimed good governance implies transparent laws with impartial execution, as well as reliable public financial information, as well as economic freedom is important determinants of foreign direct investment (FDI). The traditional determinants of FDI such as natural resources, infrastructure, skills and knowledge and low labor costs are now becoming relatively less important while less traditional determinants such as good governance, the fight against corruption, and economic freedom are becoming more important (Hardie & Howarth, 2013; Nelson, 2012; Ranis, 2011; Staats & Biglaiser, 2012; Weil, 2012).

Perhaps the most significant development in international economic relations during past two decades has been the rise in power and influence of the multinational corporations and FDI (Bellos & Subasat, 2012). Bellos and Subasat claimed one of the main variables to study in developing countries is corruption. As showed the authors, corruption can deter FDI in developing countries by increasing direct costs related to the bribery, encouraging to the governments and the bureaucracy to create artificial bottlenecks and increasing risk contracts, and by reducing the quality of government services and infrastructure (Bellos & Subasat, 2012). According to Franco and Gerussi (2013), FDI brings technology, creates employment, helps to adopt new methods of production by bringing competition in the economy, introduces to novice management skills and knowledge, and finally, explores hidden markets and reduce poverty. Foreign direct investment reduces the barriers, improve the quality of labor and raise capital in the economy, but is necessary to provide a positive climate for these investments, this is, the legal certainty for protecting private properties (Franco & Gerussi, 2013).

In developing countries is widely used the corruption perceptions Index (CPI) of the World Bank (Hainz & Kleimer, 2012). In the case of CA, the CPI indicates a high level of corruption (Hainz & Kleimer, 2012). Hainz and Kleimer showed that daily newspapers in CA regularly report bribery, embezzlement, and scandals involving senior civil servant.

The impact of corruption on the Latin American and Caribbean economy in the area of international trade is high (Jetter, Agudelo, & Hassan, 2015). According to Jetter et al., international trade is a critical variable in economic growth, and they showed variables which promote or cut off the free economic flow in order to suggest appropriate policies to enhance the economy competitiveness in developing countries. Jetter et al. concluded the economic growth is achieved promoting free market and a secure legal environment for investors, as well as the fight against to corruption.

Jetter et al. (2015) claimed the high corruption is one major issue and an important obstacle for the economic growth and development to get full economic growth and potential social development. According to Hainz and Kleimeier (2012), MDBs should not finance projects located in a country in which political risk and corruption is high and in which investor protection is weak, MDBs should lend and finance projects if there is a reduction in risk and corruption to a bearable level prior to invest. MDBs should use leverage to influence governmental decisions and deter adverse events such as corruption and political risk negatively affecting the outcome of a project, and investment uncertainty (Hainz & Kleimeier, 2012).

Economic Growth and MDBs in Developing Countries

The economic growth determines the standard of living in a nation and the economist fifer in their view of the role of government in promoting economic growth (Todaro & Smith, 2011). Todaro and Smith showed that for nearly half a century, a primary focus of world economic attention has been on ways to accelerate the growth rate of national income. In view of central role this concept has in worldwide assessment of relative national economic performance, it is important to understand the nature and causes of economic growth (Todaro & Smith, 2011).

According to Piros and Pinto (2013), factors limiting economic growth include: (a) low rates of saving and investment, (b) poorly financial markets, (c) weak, corrupt legal system, (d) political instability, (e) poor public education and health services, (f) taxes and regulatory system discouraging entrepreneurship, and (g) restriction on international trade and flow capital. Forson, Janrattanagul, and Carsamer (2013), indicated economic growth is a function of the local culture. Forson et al. demonstrated how certain cultural traits enhance or impede economic progress. The main factors affecting economic growth are population growth, capital growth, the division of labor, and institutional framework of the economy (Van den Bergh & Kallis, 2012; Zouhaier, 2012).

In the 18th century Adam Smith stated a strong, independent, and stable legal framework is essential to have a free-market and open trading system (West, 1976). Adam Smith analyzed the influences of variables on the economic growth by placing special emphasis on the impact of capital accumulation on labor productivity (West, 1976). Smith (2013) suggested economic growth depends on not only inputs such as land, labor, and capital, but also depends on social, economic, and political structures.

According to Todaro and Smith (2011), to achieve economic growth and reduce poverty the focus of governments should include (a) promoting sustainable economic growth strategies, (b) ensuring a strong political voice to citizens, and (c) strengthening capacities. MDBs have tried to apply diverse economic growth theories in developing countries, but the most common way MDBs help developing countries is providing financial and economic loans and assistance to encourage economic growth and social progress (Smith, 2013). MDBs fund infrastructure and other social projects at below-market rate interest rates (Bracarense, 2013).

In order to reduce poverty and boost the economic growth in developing countries, since 1960s MDBs have applied the following approaches: (a) project approach, (b) macroeconomic or gap theory approach, and (c) social welfare or income distribution (Weil, 2012). According to Weil, the project approach aids with making loans with the purpose of financing investment profitability projects for developing countries. The macroeconomic approach relates to quantitative development theory, and macroeconometric techniques, and social welfare approach based on Lorenz curves and Lorenz dominance for welfare analysis (Weil, 2012). The first bank to apply these approaches was the World Bank in 1944 with the purpose to facilitate leveraged loans to poor countries. After, other banks, such as the Inter-American development bank (IDB) established in 1959, continued applying the same World Bank theories, the IDB structure, has served as a model for the rest of MDBs including the African Development Bank (AFDD), and Asian Development Bank (Weil, 2012). With the purpose to boost economic growth and reduce the poverty in Latin America and Caribbean, the IDB's Board of Governors on July 21, 2010, increased of the Bank's Ordinary Capital by $70 billion, includes a proposal to increase by $479 million to financing operations in the region's poorest nations (IDB, 2012).

To measure the impact to economic growth, MDBs have developed ex-ante and ex-post methodologies with the purpose of measuring the impact in developing countries related to the loans made by MDBs. The World Bank an Asian Development Bank (ADB) use a methodology called country development analysis (CEA) to help identify key issues to future lending and technical assistance (Julio & Yook, 2012). According to Julio and Yook, the relationship between political uncertainty and temporary decline in investments is another point considered by MBDs. Political stability/uncertainty involves high/low investment. In the case of CA, the relationship between political uncertainty and investment is positive: uncertainty means low investment and political stability means high investment. The role played of MDBs would be compensates this lack of legal strong institution (Julio & Yook, 2012).

Poverty and inequality in Latin America. According to the IMF (2013), Latin America is one of the most unequal regions of the world. According to Gomes (2013), in Latin America higher inequality involve higher poverty level on income levels, the impact of inequality on poverty limiting to access to basic services such as education or health services, and social inequalities generate differences in income, quality of life, and prevalence of crime and violence (Gomes 2013). Bittencourt (2012) claimed law and property rights are essential drivers leading to economic growth and poverty reduction. According to Blanco and Lillard (2013), Latin America is one of the most unequal region around the world. Blanco and Lillard claimed there is connection between financial liberalization in Latin America and income inequality. The more free-market and more globalization lead less poverty and less inequality. There is positive relationship between free-market and per capita income (Blanco & Lillard, 2013).

According to Williams and Youssef (2014), there is an extraordinary informal economic sector in Latin America connected with high levels of inequality. Williams and Youssef claimed informal sector includes non-taxed or regulated activity, thus, the economy activity is not included in gross national product (GNP). Williams and Youssef found a relationship between corruption and inequality, more corruption is associated with higher inequality. According to Anyanwu and Yameogo (2015), the role of FDIs can help to reduce poverty and inequality in developing countries. Anyanwu and Yameogo claimed FDI could stimulate equality with the economic growth realized through the project investment. According to Alvi and Senbeta (2012), FDI can contribute to poverty reduction and inequality in developing countries for the following: (a) FDI increases investment, (b) FDI increases capital goods or technology, and (c) FDI facilitates technology transfer which increases the productivity of capital and promote technical change.

According to Gomes (2013), MDBs can help developing countries by developing internal indicators with the purpose of measuring efficiency and effectiveness related to their investment, operations, and loans in developing countries. Gomes claimed the way to fight against inequality and poverty is through private business, free-market, government implication, civil society participation, and property right (Gomes, 2013).

Internal Control Over Financial Reporting

According to Wang and Huang (2012), accurate financial reports are critical for regulators, auditors, and investors to understand where are the weaknesses and strengths of a MDBs. CFOs and managers of MDBs play a key role in determining the quality of financial reporting and internal controls. Banks with deficient internal controls are more likely to have lower earnings (Wang & Huang, 2012). To provide reasonable assurance related to the fair presentation of financial statements, most banking undergo periodic audits. An audit is an examination of bank's financial statement and the accounting system, internal controls, and records. According to Delis (2012), the regulatory environment has a significant positive influence on the internal control practices of banks. Internal control help organizations increase transparancy (Delis, 2012; Schwartz, 2013). Delis stated a key responsibility of managers is to control the operations of their business. Shareholders and the top managers set the corporate goals, managers lead the way, and the employees carry out the plan. Internal control is the organizational plan and the related measures a corporate and banks adopt to (a) safeguard assets, (b) encourage adherence to bank policies, (c) promote operational efficiency, and (d) ensure accurate and reliable accounting records (Delis, 2012).

Internal control. An internal control system consists of the control environment and control procedures within an organization (Devin & Roni, 2013). According to Devin and Roni, the Committee of Sponsoring Organizations of the Tredway Commission (COSO) help organizations design and implement internal control, as showed the authors, COSO implement internal control, policies and procedures in light of many changes in business for ensuring, as far as practicable: (a) the orderly and efficient conduct of its business, adhering to internal policies, (b) the safeguarding of assets, (c) the prevention and detection of fraud and error, (d) the accuracy and completeness of accounting records, and (e) the timely preparation of reliable financial information (Devin & Roni, 2013).

Vandervelde, Brazel, Jones, and Walker (2012) described how the formation of COSO in 1985 by five main professional accounting associations and institutes including American Institute of Certified Public Accountants (AICPA), American Accounting Association (AAA), Financial Executives Institute (FEI), The Institute of Internal Auditors (IIA) and The Institute of Management Accountants (IMA). According to Vandervelde et al., business organization including not-for-profit (NFP) and MDBs needs developing and maintaining a strong internal control with the purpose of ensuring the objectives, policies, transparency and procedures inside organization’s objectives have been implemented in each level inside organizations, and procedures (Vandervelde et al., 2012). COSO and the integrated framework of internal control is the foundation for an effective internal control system to organization's objectives such as companies, NFPs, MDBs, and also for Non-governmental organizations (NGOs; Vandervelde et al., 2012).

An organization generally has a written set of rules and procedures. Any deviation from standard policy requires proper authorization. According Kitching, Pevzner, and Stephens (2013), COSO defined the internal control as a process, effected by the board of directors, management, and other personnel within organization with the purpose of providing reasonable in the following categories: (a) effectiveness and also efficiency of operations, (b) reliability of financial disclosure reporting, and (c) compliance and regulations (Kitching et al., 2013).

Internal controls include the control environment, integrity, ethical values, and the operating style of a company (Kitching et al., 2013). COSO broadly consists of five interrelated components: (a) control environment, (b) risk assessment, (c) control activities, (d) information and communication, and (e) monitoring (Janvrin, Payne, Byrnes, Schneider, & Curtis, 2012). Internal control is a process for assuring accomplishment of the objectives within an organization in operational transparency, effectiveness and efficiency, accurate and reliable financial disclosure, and compliance with laws, regulations, procedures, and policies including control risk inside organizations (Martin, Sanders, & Scalan, 2014).

The lack of transparency, accountability, and internal control affect the quality of public services and have a negative impact on development countries, especially for the poorest countries (Devin & Roni, 2013). Transparency and accountability is part of the mandate of all MDBs. MDBs have to contribute to the improvement of public policies for preventing and combating lack of transparency of governments by improving access to information, promoting modernizing and implementing internal control and enhancing the oversight role of legislative bodies (Devin & Roni 2013).

Martin et al. (2014) found several recent cases demonstrating a relationship between lax internal controls and significant losses. Martin et al. identified three basic types of control breakdowns including (a) lack of adequate management oversight and accountability, and failure to develop a strong control culture within the bank, (b) inadequate assessment of the risk of certain banking activities, whether on or off a balance sheet, and (c) inadequate or ineffective audit programs and monitoring activities.

Public accountants who have met certain professional requirements in accounting, auditing, and law are designed as certified public accountants (CPAs). Public accountants provide valuable services such as consulting, auditing, and tax accounting (Smith, 2015). According to Smith, the Sarbanes–Oxley Act (SOX) established the public company oversight board to regulate public accounting firms who audit traded companies. SOX specifically addresses issues of conflict among company executives, accounting firms, as well as chief executive officers (CEOs) and CFOs to certify the annual and quarterly reports of publicly traded companies. Included in the SOX regulation is the establishment of the Public Company Accounting Oversight Board (PCAOB) and standards for auditor independence, corporate responsibility, transparency and enhanced financial disclosures (Smith, 2015). Section 404 of SOX, highlighted the importance of internal controls over financial reporting. According to Hoos and Bollmann (2012), the legislation obliges institutions to develop specific controls to prevent fraud. The intent of SOX is to force management to take responsibility over internal controls, which reduce the risk of fraudulent behavior (Hoos & Bollmann, 2012).

According to Henderson, Davis, and Lapke (2013), company owners, attempting to avoid financial fraud engages an audit firm to audit financial statements. As showed Henderson et al., audits can be internal or external. Internal auditors as employees of the business report directly to the audit committee. External auditors are entirely independent of the business. Improving operations efficiency and effectiveness, commitment to respect the law, disclosing financial reports reliable, and internal audit are four objectives of internal control (Henderson et al., 2013).

Investors and financial institutions rely on information technology (IT) as a way to be more effective in internal control. The role played by IT in internal control is very important including accounting information system, investment, and credits operations including MDBs operations (Weirich & Ciesielski, 2012). The higher level of IT leads to higher operation efficiency and effectiveness along with auditor independence is critical to maintaining public and capital market confidences as well as transparency and integrity of financial disclosures (Henderson et al., 2013). Weirich and Ciesielski claimed the past financial scandals, demonstrated the necessity to adopt a stronger ethical culture, risk management processes, transparency, and internal controls to avoid business frauds.

Transparency. Recent experiences, such as the losses from derivatives usage, suggest there is room for some fresh insight to help maintain a high transparency climate (Michener & Bersch, 2013). Michener and Bersch claimed the interest regarding business transparency began to surface in the 1970s. Hundreds of companies publicly disclosed questionable foreign business practices and payments. Michener and Bresch (2013) provided guidelines for identifying and evaluating transparency, which depends on the visibility of information related to three necessary conditions: internal control, accuracy, and transparency of finance.

Information technology plays an essential role in transparency (Reinhard, 2015). Reinhard analyzed the content of 50 Latin American government web sites to assess whether transparency laws impact the interactivity and usability on this web sites providing information to citizens. According to Reinhard, the transparency laws between countries such as government web sites from Europe or The United States of America uses more interaction with citizens than government laws web sites from Latin American countries. Government can use web sites for relationship with citizens and other stakeholders inside de country and beyond the nation's borders (Reinhard, 2015).

The lack of values, principles, and a missing transparency in an organization often leads to the creation of codes of ethics as well as the creation of corporate governance with the purpose of regulating business social responsibilities (Johansson & Malmstrom, 2013). According to Johansson and Malmstrom, two important variables including globalization and democratization are important transparency promoters. Transparency is an important concept and is crucial for a corporate the code of ethics (Johansson & Malmstrom, 2013).

Johansson and Malmstrom (2013) claimed the growth of transparency in business and investments is one of the determinant factors helping to combat corruption in some of

Latin American countries. According to Sundström (2012), transparency refers to provide guides in the entire business cycle with the purpose of maximizing transparency in competitive tendering, promoting fair and equitable treatments among suppliers. The prevention of misconduct and control deals to put methods and rules in place to prevent risks to integrity, encourage cooperation between government and the private sector, and provide mechanisms to control public procurement as well as detect early misconducts in order to apply sanctions accordingly (Sundström, 2012).

One of the most important challenges in competitiveness and a better society in the 21st century relates to the development of good corporate governance practices and business transparency at the global level (Shank, Hill, & Stang, 2013). Shank et al., claimed good corporate governance leads to positive organizational outcomes the focus on governance ensure the efficiency. Shank et al. identified historical, cultural, political, and economic realities which play a crucial role to implementing corporate governance. A good corporate governance and business transparency is based on adequate combinations of the legal protection of investors and business ownership (Shank et al., 2013). The financial accounting standard boards (FASB) determines how accounting is practiced (Verriest et al., 2013). The FASB works with the Securities and Exchange Commission (SEC) and AICP (Verriest et al., 2013). The rules governing how accountants operate fall under the heading of GAAP. GAAP rest on a conceptual framework written by the FASB: to be useful, information must be relevant, reliable, and comparable accountants follow professional guidelines.

Transparency and corporate governance in Latin American countries has not changed (Arbeláez & Tanaka, 2012). Laws related to transparency lack implementing regulations, are ambiguous and courts are subject to executive and legislative branch influence (Arbeláez & Tanaka, 2012). Other laws allowing more transparency on investment and free market simply ignored or not enforced. Transparency and information-sharing to advance in democracy, better governance, and economic development should be an issue inside NGOs and MDBs in efforts to monitor free market and transparency in their operations, financial disclosure, transparency in executive branch activities, and progress made in the country to advance in ethics and better governance (Santiso, 2015).

Financial reporting control. Horton, Serafeim, and Serafeim (2013), the primary objective of financial reporting is to provide transparency and information useful for making investment and lending decisions. After the collapse of Enron Inc., financial reporting fraud was front-page news, the issue was a serious concern for boards, investors and for the public in general, and caused public and private corporations to spend significant resources complying with regulatory structures (Huang, Guo, Ma, & Zhang, 2015). According to Gao and Jia (2015), transparency and quality data of financial disclosure is essential to avoid fraud inside organization's objectives. The last financial crisis revealed the most common motivations for financial information fraud is the need to meet internal or external profit expectations and a desire from top managers to get personal financial gain such as maximizing bonuses or the value of stock option. Fraud is not exclusive to managers, responsibility to deter and detect fraud also include the board and audit committee and the independent external auditor (Gao & Jia, 2015).

Relevant information and internal control about financial reporting is useful in making decisions and for evaluating past performance. To be relevant, information must be timely and reliable, and free from significant error. Comparable and consistent information compared from period to period helps investors and creditors track progress through time (Marinovic, 2013). Marinovic claimed internal control over financial reporting includes all of the processes management puts in place to ensure the activities and assets of the business align in accordance with the policies and procedures. The authors suggested inaccuracies in a financial statement may occur from calculation errors or intentional misstatements. Effective internal controls over financial reporting reduce the risk of asset loss and help ensure information is complete and accurate (Marinovic, 2013).

A noncomprehensive listing includes the European Countries, Canada, Australia, and New Zealand is using IFRS but in the United States, the US GAAP is still required. According to Barniv and Myring (2015), differences in valuations of inventory, property plant, and equipment, intangible assets, and development costs between IFRS and U.S. GAAP companies are not significant. As of January 1, 2011, most of the world financial market economies are using IFRS as a framework for financial statements and financial disclosure (Marinovic, 2013). According to Marinovic, the adoption of IFRS to financial disclosing no guarantees transparency and preventing fraud without ethical culture in these countries. The lack of transparency on develop norms about financial reporting, has an impact in less investment, thus, in economic growth and reducing poverty (Marinovic, 2013). Gramling, O'Donnell, and Vandervelde (2013) determined independence of an external auditor on financial information is essential, because external auditors evaluate effectiveness, gather evidence on financial transactions and account balances to determine if the financial statements reflect these event. If the financial statement irregularities material weakness remains unresolved or undetected, a material misstatement could occur in the financial statements of a company, which may have a tangible effect on a real economic and financial valuation (Gramling et al., 2013).

Transition and Summary

In Section 1, I provided a justification for a quantitative correlational research study to examine the relationship between the risk-free rate, volatility, market return, and expected return used by MDBs on CA loans. Section 1 included a discussion on the background of the problem, highlighting investment policy guidelines in CA, in order to emphasize liquidity problems in countries with less financial and economic power. Also included in Section 1 included the general and specific business problem statements for this study.

Section 1 included a discussion on the purpose of the study, nature of the study, theoretical framework, and literature review. The nature of the study included a discussion of research methodologies and the theoretical framework contains the research topic examination. The assumptions, limitations, and delimitations section included a discussion on the controlled and uncontrolled factors affecting the results. Section 1 concluded with an explanation of the gaps in the academic literature, which provided a justification for studying the relationship between the risk-free rate, volatility, market return, and expected return used by MDBs on CA loans.

In Section 2, I included the role of the researcher, participants, research method and design, and the target population. Section 2 also includes a discussion of the ethical considerations and the details of the data collection procedures, the suitability of the planned research methodology, including research design, population, sample selection technique, data collection, data analysis, and validity process. Section 3 contains the overview of the study and the results of the study based on the data analyzed.

Section 2: The Project

In this section, I provide an overview of and rationale for the research methodology and design that I selected for this study. After restating my purpose statement, I discuss my role in the research process. I also describe and discuss my target population, sample selection strategies, research ethics, data collection, instrument, organization, analysis, and techniques. I follow with a discussion of how I will manage the reliability and validity of my results. The section concludes with a summary and an introduction to Section 3.

Purpose Statement

The purpose of this quantitative correlation study was to examine the relationship between the risk-free rate, volatility, market return, and expected return used by MDBs for CA loans. Data were gathered from a population of approximately 3,000 business project loans made by MDBs in Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Belize, and Panama with a total asset value of approximately USD$4,857 billion. Wealth inequality in CA limits access to basic services such as education and health services and increases the prevalence of crime and corruption. The independent variables included the risk-free rate of return (R_f), project's volatility (β_p) and the expected return on the market (R_m) and the dependent variable is the expected return (r_p) used by MDBs. This study may lead to positive social change by providing guidelines for bank managers, investors, and policymakers who share an interest in developing countries.

Role of the Researcher

My role as researcher was to (a) design a research problem, (b) select the appropriate method and design, (c) collect data, and (d) analyze the data to draw conclusions (Szyjka, 2012). In this study, I identified of an overreaching research question to frame the hypotheses. Collecting secondary data should aid with testing the hypothesis and based on the data analysis, I determined the intensity of the relationships and accept or reject the hypotheses. According to Przystalski (2010), researchers attempt to nullify or disprove the mathematical statement conveyed in their null hypothesis. The null hypothesis is there is no relationship between the independent variable and the dependent variable, or has no effect on it. Typically, the alternative hypothesis is the central thesis of a research study. A researcher states in the alternative hypothesis there is a meaningful difference between the group means (Przystalski, 2010).

As the researcher in this quantitative correlational study, I have over 25 years' experience in finance. For this study, my responsibilities were as follows: (a) examine the relationship between two or more financial variables related to business loans made by MDBs, (b) determine the effect of more than one independent variable on a particular dependent variable in business loans made by MDBs, (c) use multiple regression to make valid inferences regarding business loans made by MDBs, (d) explain the variation in the dependent variable (the excepted return used by MDBs), (e) determine the value of the dependent variable in a multiple regression based on assumed values of the independent variables related to business loans made by MDBs, and (f) analyze my results.

The Belmont Report (1979) provides an ethical framework for researchers to use when working with participants; its framework includes respect, beneficence, and justice. According to Ferrel, Fraedich, and Ferrel (2014), researchers should maintain a high level of ethical values. During the research process, I did not have human participants; the ethical issues identified in the Belmont report do not apply. Ethical business research stems from decisions made by the researcher representing the best interest of the business organization, participants, and research stakeholders. Ethics in business research refers to a code of conduct or expected societal norms of behavior displayed by the researcher while conducting the research (Ferrel et al., 2014).

Participants

This study did not include human participants because the central theme is about the relationship of previously collected data from MDB business project loans. While the lack of human participants limited the risk of compliance to the Belmont Report, I remained mindful of the report's requirements in the event human contact did occur. Instead of collecting data from participant interviews, I followed Boyer, Gardner, and Schweikhart's (2012) strategy for using available secondary data. Data for my study came from secondary sources, including MDB annual reports and audited financial statements from 1995 to 2013, IMF, OECD, S&P Dow Jones U.S. Corporate Bond, and U.S. Department of the Treasury. Secondary data are appropriate for a quantitative correlational study (Maxim, 1999). Maxim explained using secondary data allows access researchers to a large range of previously collected data sets (see also Hennebel, Boon, Maes, & Lenz, 2015). Mewes et al. (2011) suggested secondary data are an efficient mechanism for research.

Research Method and Design

Researchers have a choice among several methodologies when conducting studies. The methods of choice include qualitative, quantitative, and mixed methods (Sekaran & Bougie, 2013). Choice of a design follows choice of a method. A researcher chooses a correlational design when the goal of the research is to measure the significance of a relationship (Garcia & Zazueta, 2015). In this study, I sought to identify the relationship between the risk-free rate of return, project volatility, the expected return on the market, and the expected return used by MDBs on business project loans in CA. The most appropriate method and design for this study was, respectively, quantitative and correlational.

Research Method

Research methods are the techniques used to collect, sort, and analyze information to make conclusions (Garcia & Zazueta, 2015). Garcia and Zazueta stated researchers use quantitative correlation techniques to assess the relationship among variables and is oriented with a post-positivist/positivist paradigm in numerical data in an objective way. A quantitative correlation research estimates the relationships among variables in order to establish criteria of objectivity, reliability, validity, and replication of results. A quantitative study approach involves analysis of numerical data while a qualitative study approach involves analysis of textual data (Daniel, 2012). A mixed method study uses elements from both qualitative and quantitative (Daniel, 2012).

Neither the qualitative nor the mixed methods research were appropriate for this research because qualitative research focuses on interpretation of phenomena and collects information about personal experiences, interviews, and observations: it is difficult to aggregate data and make systematic comparisons (Chincarini, 2013). The mixed methods research was not appropriate for this study because the method requires the researcher to collect and analyze data using both qualitative and quantitative approaches, and this research used only quantitative data (Chincarini, 2013).

Research Design

Quantitative research design includes three broad classes: (a) experimental or quasi-experimental, (b) correlational, and (c) descriptive (Florens, Johannes, & Van Bellegem, 2012). Florens et al. explained the researcher in an experimental design assigns variables to a group or category through random means. In the quasi-experimental, assigning research randomly to the experimental groups does not occur yet, some kind of control is used. According to Martin and Bridgmon (2012), in an experimental design, researchers measure the influence of a variable on another variable through the application of a treatment, and accurate measurement of the outcome to determine whether or not there are changes to the dependent variable experimental design involves causation between variables (Black, 1999). Brandmaier, Tetko, and Öberg (2012) described an experimental design as one where a researcher is interested in clarifying the relationship between the controllable conditions and the results of the experiment. A quantitative design not involving a determination of influence of a treatment is not experimental.

The quasi-experimental design offers another alternative to a true experiment. A quasi-experiment is similar to a true experiment except the researcher cannot randomly assign participants to the treatment and control conditions (Tang & Zhang, 2013). I did not randomly assign participants to the group. The grouping existed before the research began and were not randomly assigned to the group. In an observational research, a researcher makes no assignments to groups but observes the relationships of different variables and outcomes existing in the real world (Florens et al., 2012).

According to Boslaugh (2013), correlational designs allow researchers to test hypothesis with two or more variables relate to one another. In the study, I measured the correlation or the degree of relationship between variables and regression of one variable (dependent variable) from more related variables (independent variables). When only two variables are involved, there is a simple correlation and simple regression (Brandmaier et al., 2012). When more than two variables are involved, there is multiple correlation and multiple regression (Florens et al., 2012).

Quantitative correlation research and multiple correlation and regression was aligned with the objectives of this study because it was the most appropriate in order to avoid and minimize systematic errors or bias. To help me understand the variables I used descriptive statistics. Descriptive statistics generally involves presenting the data in groups by using tables or graphs (Black, 1999). Statistical descriptive techniques such as means and standard deviations do not allow a researcher to understand the relationship among data (Sekaran & Bougie, 2013). These statistical tools should help with understanding the data by testing the hypothesis through a correlational design.

Population and Sampling

I gathered data from a population of approximately of 3,000 business project loans made by MDBs in CA and Caribbean with an asset value of USD$4,857 billion. The financial data came from secondary sources from MDBs, including annual reports and audited financial statements from 1995 to 2013, along with reports from the IMF, OECD, S&P Dow Jones U.S. Corporate Bond, and U.S. Department of the Treasury. I based the data on long-term investments business project loans made by MDBs in Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Belize, and Panama. In this study, the population of interest included the entire group of business loans made in CA by MDBs including the World Bank, IDB, CABEI, and CAF.

Landau and Stahl (2013) and Durand (2013) indicated having an appropriate sampling strategy is critical to the validity of research results. There are many methods of drawing samples from the population. Each method shares a common goal, to ensure the sample is an unbiased depiction of the population (Daniel, 2012). Daniel distinguished between a probability and nonprobability sample. I rejected a nonprobability sample, because, as described by Yin (2014), a researcher cannot make inferences about the population with a nonprobability sample. The sampling technique is what Daniel describes as a probabilistic random sample strategy. This strategy was appropriate because the goal is to draw inferences of the entire population of loans based upon my sample.

The sampling steps include the following: (a) define the population, (b) determine the sample frame, (c) determine the sampling design, (d) determine the appropriate sample size, and (e) execute the sampling process. A reason for using a random sample (a subset of the population) rather than collecting data from the entire population is because it is difficult to collect an entire population data set (Chincarini, 2013). Barratt and Lenton (2014) also suggested using a probabilistic random sample is a low cost alternative to attempting to examine the entire population. Barratt, Ferris, and Lenton, (2014) noted examining a sample is an appropriate means to draw inferences about the entire population.

The method of drawing a random sample from the population in this study is a simple random sampling. Sekaran and Bougie (2013) stated the goal of a random sample is to select a sufficient number of items from the population so the results reflect the entire population. Power et al. (2012) recommended using G*Power 3 as an appropriate sample calculator. Similar to Button et al. (2013), used the G*Power software program version 3.1.9.2 to determine the sample size for standard multiple linear regression. Based upon the application, the sample size for standard multiple linear regression is at least 66 loans, where alpha = .05, power = .80, and predictor variables = 3.

Ethical Research

Researchers should irrespectively of the research methodology follow and anticipate issues while actively addressing ethical dilemma (Sekaran & Bougie, 2013). Sekaran and Bougie claimed researchers have an ethical obligation of justifying the reliability and credibility of their research methods. According to Durand (2013), researcher should respect populations, and to avoid putting participants at risk in the process of data collection. In this research, however, human participants were not included, as the data required in this research were publicly available. Consequently, the documents intended for the protection of participants including consent forms, confidentiality agreements, and letters of cooperation, were not required. The businesses data, some of which will be relevant related to this research will be stored in a password-protected electronic folder accessible only to me, and the data will be deleted from the electronic folder using the DEL command to delete files and folder 5 years upon completion of this research.

Instrument

Data collection for this study came from secondary sources and I did not use an external instrument. Barley and Moreland (2014) observed that instruments are research tools to collect data, such as survey instruments. I did not use a survey to collect data; but, limited my data collection to secondary data. According to Sekaran and Bougie (2013), there are two sources of data, primary data and secondary data. Primary data is the data collected specifically for the study in question. In contrast, I did not originally collect the secondary data for the specific purpose of the study at hand but rather for some other purpose (Sekaran & Bougie, 2013). Sekaran and Bougie claimed secondary data refers to information gathered from existing sources, and are indispensable for most business research. Data collection is an integral part of research design (Black, 1999).

Garcia and Zazueta (2015) stated quantitative researchers collect secondary data for statistical analysis. Lin and Lui (2015) stated that a researcher sets boundaries for the research by establishing the framework for recording, and analyzing information. In this research, all data and sources used were secondary. Secondary data used in this research included MDBs audited financial statements from 1995 to 2013, MDBs annual reports from 1995 to 2013, and business loans made by MDBs from 1995 to 2013 in CA countries: Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Belize, and Panama. Other secondary data came from IMF, OECD, Standard & Poor's, and U.S. Department of the Treasury data files.

Data Collection Technique

Tashakkori and Teddlie (2003) explained researchers could use multiple collection methods to gather raw data. Tashakkori and Teddlie identified collection tools including questionnaires, interviews, focus groups, tests, observations, or secondary data. In this doctoral study, all data were secondary. Fleischhacker, Evenson, Sharkey, Pitts, and Rodriguez (2013) indicated secondary data are an appropriate research data source. I used data from MDBs audited financial statement, annual reports from The World Bank, IDB, CABEI, and CAF. The data collected were from business loans in Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Belize, and Panama. Other secondary data came from IMF, OECD, Standard & Poor's (S&P), and U.S. Department of the Treasury data files.

To obtain the risk-free discount rate to calculate the CAPM, the secondary data source included the U.S. Department of the Treasury. The U.S. Department of the Treasury offers raw data, graphs, chart information and calculation about coupon rate, face value, number of times of interest paid each year, maturity date, daily treasury yield curve as well as the interest rate to the international capital system (Fleming, 2012). The issue debt, the yield rate and time period on U.S. Treasury is as follows: 1Mo, 2Mo, 3

Mo, 1Yr, 2Yr, 3Yr, 5Yr, 7Yr, 10Yr, 20Yr, and 30Yr. I used the S&P Dow Jones website to obtain the risk premium to calculate the CAPM. The method to determine market risk replicated the techniques from the seminal work by Caporale (2012), Handley (2013), Lagoarde-Segot and Leoni (2013), and Roulet and Blundell-Wignall (2013).

Data Analysis Technique

The overreaching research question is: What is the relationship between the risk-free rate, volatility, market return, and expected return used by MDBs for CA loans? The study included three independent variables: the risk-free rate of return (R_f), project's volatility (β_p), and the expected return on the market (R_m). The dependent variable was the expected return (r_p) used by MDBs as compared to the expected return to the market. From the overreaching research question, and after reviewing the literature on MDBs and CAPM, I developed the following two sub-questions:

Subquestions

RQ1: What is the difference between the expected return (r_p) adjusted by (R_f, β_p, R_m) in comparison with the (r_p) used by MDBs?

RQ2: What is the relationship between the expected return (r_p) adjusted by (R_f, β_p, R_m) with the (r_p) used by MDBs?

Hypotheses

$H_0$1: The expected return (r_p) adjusted by (R_f, β_p, R_m) is not above in comparison with the (r_p) used by MDBs in CA.

$H_1$1: The expected return (r_p) adjusted by (R_f, β_p, R_m) is above in comparison with the (r_p) used by MDBs in CA.

$H_0 2$: There is not a statistically significant relationship between the (r_p) adjusted by (R_f, β_p, R_m) with the (r_p) used by MDBs in CA.

$H_1 2$: There is a statistically significant relationship between the (r_p) adjusted by (R_f, β_p, R_m) with the (r_p) used by MDBs in CA.

Tonidandel and LeBreton (2013) determined the investigation of a proposed relationship through a statistical analysis is an appropriate form of quantitative research. While I chose a multiple regression model, I considered other options including factor analysis, multiple analysis of variance (MANOVA), and path analysis. Multiple regression analysis is similar to simple regression analysis (Black, 1999). Only in this case, I used more than one independent variable to explain variance in the dependent variable. Multiple regression analysis is a multivariate technique used often in business research (Boslaugh, 2013).

Sekaran and Bougie (2013) and Zhang et al. (2011) noted multiple regression analysis is most appropriate when researchers want to examine the relationship between several independent variables and dependent variables, and provides a means of objectivity assessing the degree and the character of the relationship between predictor variables and the dependent variables. The regression coefficients will indicate the relative importance of each of the independent variables in the prediction of the dependent variable. Similarly, Ayinde, Lukman, and Arowolo (2015) used multiple regression analysis to determine the correlation of several independent variables with a dependent variable. To test the hypotheses of the research, a multiple regression analysis aided with the examination of the relationship between the predictor variables (the risk-free rate of return, project’s volatility, the expected return on the market) and the dependent variable expected return used by MDBs in CA.

Boyd and Crawford (2012) suggested data cleaning starts with the establishment of the raw data characteristics. Kaushik and Pennathur (2012) recommended developing selection criteria. This is a part of the data cleansing process. Hung (2012), Randall, Ferrante, Boyd, and Semmens (2013) recommended performing data cleaning strategies to improve quality, which could minimize the chances of committing false positives. When performed effectively, Birtwhistle and Williamson (2015) found the cleaning process converts the raw data into a useable form for analysis. Sorting the data to identify any missing information and data points requiring eliminated from the population aided with the process.

Bok-Hee and SoonGohn (2014) noted multiple regression analysis is most appropriate when researchers want to examine the relationship between several predictor variables and a dependent variable. Examining the relationship between variables was the goal of the study, thus similar to Bok-he et al., I chose multiple regression. The analysis process included using SPSS software to test the hypotheses, ascertain the key assumptions of normality, linearity, homoscedasticity, independence of error, and multicollinearity. Ghasemi and Zahediasl (2012) stated normality in multiple linear regression indicates the distribution of residuals (predicted minus observed values) are normal (i.e., follow the normal distribution). Similar to Peng and Murphy (2011), I tested the standardize residuals for normality by using a normal probability-probability plot (p-p plot).

Linearity assumes the linear relationship between variables; in practice, this assumption can virtually never happen (Yang, Novick, & LeBlond, 2015). Minor deviations do not affect multiple regression procedures from this assumption. As noted Nguyen, Schwartz, and Dockery (2014), it is prudent to look at a bivariate scatterplot of the variables of interest. A test of the distribution of the residuals using scatterplots to determine if the curvature in the relationship is evident aided with the process.

Homoscedasticity requires the variation around the line of regression be constant for all values of independent variables (Wilcox & Keselman, 2012). This means dependent variables varies the same amount with both low and high (Wilcox & Keselman, 2012). Bamel, Rangnekar, Rastogi, and Kumar (2013) used a scatterplot to check homoscedasticity disturbances in research on business processes. Therefore, I checked for the homoscedasticity disturbances using scatterplots.

The independence of error requires population random error (the residual difference between each observed and average predicted value of dependent variables) be independent for each value of independent variables (Broberg, Salminen, & Kyttä, 2013). Bercu, Portier, and Vazquez (2014) used the Durbin-Watson test to determine autocorrelation, which tests for serial correlation between errors. Therefore, I replicated this procedure for my data.

Filzmoser, Hron, and Reimann (2012) noted outliers are data points or observations whose value is quite different in the data set analyzed. Filzmoser et al. employed scatterplots to detect outliers in research on brain behavior and geochemistry data. I determined the presence of outliners using scatterplots.

Multicollinearity refers to the case in which two or more explanatory variables in the regression model are highly correlated, making it difficult to isolate their individual effects on the dependent variable (Zahari, Ramli, & Mokhtar, 2014). Hannigan and Lynch (2013) suggested using the Pearson correlation coefficient to determine linear association among data, or for examining the relationship between pairs of variables. Therefore, to determine multicollinearity among all variables, I generated a Pearson correlation.

According to Boyd and Crawford (2012), the hypothesis testing process in this study was as follows: (a) specify the population value of interest, (b) formulate the appropriate null and alternative hypotheses, (c) specify the level of significance (α = 0.05), and (d) as stated by Martin and Bridgmon (2012), construct the rejection region: for α=0.05, the one-tailed, upper tailed, critical value for $n - 2 = 10 - 2 = 8$ degrees of freedom is $t = 1.8595$. The decision rule is $t > 1.8595$, reject the null hypothesis; otherwise, do not reject the null hypotheses (Martin & Bridgmon, 2012), and if $t >$ 1.8595, reject the null hypothesis (Gurmu & Elder, 2012; Leedy & Ormrod, 2012).

I calculated the CAPM theory using MATLAB. The primary assumption as described by Maio (2013) is CAPM model predicts the expected returns on risky assets. Maio stated the CAPM theory gives financial managers a precise prediction of the relationship between the risk of an asset and its expected return. The CAPM is useful in capital budgeting decisions (Brunzell, Liljeblom, & Vaihekoski, 2013). For a company considering a new project, the CAPM provides the required rate of return the project needs to yield, based on its beta, to be acceptable to investors (Gdeisat & Lilley, 2013;

Maio, 2013). CAPM provides a framework to explain the variables defining the expected return of an investment (Brown & Walter, 2013; Ghapanchi et al., 2012). Given the assumptions of this model, I used the CAPM to obtain this cutoff expected return for the projects.

The previous sections outlined the importance for a bank to monitor the cost of equity/expected return in business projects evaluation. MacDonald and Koch (2012) stated that the expected return conceptually is the marginal cost of equity equal to the required return to shareholders. The CAPM aids with the approximating the expected return to evaluate business projects/investments (MacDonald & Koch, 2012). I used the CAPM in this research to find the cost of equity or the expected return to evaluate business projects made by MDBs in CA. Ghapanchi et al. (2012) stated that the estimation of CAPM is as follows:

$$r_p = R_f + \beta_p (R_m - R_f) \qquad (3)$$

Where

r_p = expected return to find the required rate or rate on an investment/project

R_f = risk free rate of return

β_p = volatility (beta coefficient)

R_m = expected return on market

The risk-free of return is mainly determined as the yield on government bonds (Javid, 2014). However, CFOs have to make sure the investment life of a project is the same as the time to maturity of the government bond, this is, the risk-free rate (Fleming, 2012). In this study, the life of a projects or investment is 10 years; I used the yield on the

10 year U.S. Treasury note as the risk-free of return. The average risk-free rate in 2013 was of 2.35% (U.S. Department of the Treasury, 2013).

The next input to determine the CAPM formula was to calculate the historical market return also called risk premium. Rieger (2012) suggested the historical market return and risk premium come from determining the total market value of a stock exchange or index (such as Dow Jones Corporate Bond Index) over a given period. According to Brealey et al. (2014), project's volatility is a key input to measure an investment/project, at the same time difficult to measure because beta shift over time. Brealey et al. explained that the range of project volatility is between 0.5 and 2 (Table 3), where project's volatility is 2 reflects a risk return twice as volatile and risky projects as of the market. According to Berk and DeMarzo (2013), there are several ways to estimate project's volatility. The first method is to compare the historical return of similar investments to those of the total market return.

Table 3

How to Read a Beta

Beta	Meaning
0	The investment's return is dependent of the market. An example is a risk-free investment (e.g., T-Bill)
0.5	The investment is half as volatile as the market
2.0	The investment is twice as volatile or risky as the market

The beta of an asset (β_a) is a function of the covariance of the return on the asset and the market factor divided by the variance on the market return:

$$\beta_a = \text{covariance}_{a,\,m} \text{ divided by variance}_{m} = \rho_{a,\,m}\,\sigma_a\,\sigma_m \text{ divided by } \sigma^2 \text{ sub } m \qquad (4)$$

Where:

$\rho_{a,m}$ = correlation between the return on the asset and return on the market

σ_a = is the standard deviation of return on the asset

σ_m = is the standard deviation of return on the market factor

σ^2 sub m = is the variance of return on the market factor

The second method to estimate the beta of an investment is to compare the historical return on equity and contrast this return to the market return; this method is termed the accounting beta model (Husmann & Todorova, 2013). According to Carmona, Moral, Hu, and Oudjane (2012) and Chochola, Hušková, Prášková, and Steinebach (2013), the best method to determine the beta is to review projects undertaken by similar companies. This method is pure play method (Chochola et al., 2013). I used the pure play method was the method followed to estimate the beta of the CAPM in this research. Betas to estimate the CAPM in this study (Table 4) stemmed from the seminal work by Roulet and Blundell-Wignall (2013). In this seminal work, Roulet and Blundell-Wignall (2013) identified the Betas among the 94 most influential banks around the world with more equity (Roulet & Blundell-Wignall, 2013).

Table 4

Beta Level Risk Bucket on 94 Largest Banks

Level of Risk	Beta	*SD*
10%	1.33	0.36
22.5%	1.38	0.24
35%	1.16	0.29
22.5%	0.92	0.21
10%	0.94	0.10

Note. Level of risk bank classified by level of risk; Beta=is the beta according to level of risk; SD=Standard deviation for level of risk.

Four simulations expected return (r_p) according to five different Betas (β_p). Rzakhanov (2012) stated that simulation is a driving model of a problem through a set of state spaces in a shortened timescale. Ghapanchi et al. (2012) stated that there are two basic principles fundamental to simulation. This is the ability to alter the timeframe by contraction (time contraction) or expansion (time expansion).

The other is the testing of alternatives to ascertain the behavior of the simulation (Ghapanchi et al., 2012). This study followed the testing four expected returns (r_p) alternatives (what if….?) to simulate and finding how variable is the expected return changing the betas in order to calculate the CAPM. As stated by Sargent (2014), typically, a simulation model will attempt to describe a business system by a number of equations. Sargent (2014), Guermat (2014), Kurita (2014), and Mbairadji, Sadefo, Shapiro, and Terraza (2014), believed four type of variables characterized the equations.

1. Input variables are outside of the model; they are exogenous, and are subject to change for a particular simulation. The input variables create the

business situation and give the model circumstances, in this study, increasing or decreasing the expected return (r_p).

2. Parameters (fixed variables) are input variables given a constant value for a particular simulation exercise. If, for example, a variable was allowed to increase during the simulation it would be regarded as an input variable, in this study the expected return/discount rate; however, if the value were kept constant it would be a parameter: risk-free rate of return (R_f), project's volatility (β_p), and the expected return on the market (R_m).

3. Status variables describe the state of the system. If, for example, the pattern of the expected return (r_p) varies according to the project's volatility (β_p) the status variables would specify the expected return (r_p).

4. Output variables provide the results of interest, in this study, increasing or decreasing the expected return (r_p).

Study Validity

In this quantitative correlation study, I examined the relationship between the risk-free rate, volatility, market return, and expected return used by MDBs on CA loans. Consequently, there were no experimental design and threats to internal validity. Internal validity is a concern for researchers using an experimental design (Black, 1999). However, I need to be concerned about potential threats to statistical conclusion and procedure validity.

Howison and Wiggins (2011) stated statistical conclusions validity depends on meeting a set of assumptions. The assumptions necessary for making inferences in regression analysis fall under the general heading of linear models. The assumptions made by the regression model required me to verify and consider the following assumptions of linear regression model: (a) normality, (b) linearity, (c) homoscedasticity, (d) independence of error, (e) the presence of outliers, and (f) multicollinearity (Howison & Wiggins, 2011).

Normality. Ghasemi and Zahediasl (2012) stated normality in multiple linear regression indicates the residuals (predicted minus observed values) are distributed normally (i.e., follow the normal distribution). Even though tests (specifically the *F*-test) are, quiet robust with regard to violations of this assumptions, Ghasemi and Zahediasl recommend a researcher reviews the distribution of the major variables of interest before drawing final conclusions. Similar to Peng and Murphy (2011), I tested the standardize residuals for normality by using a normal probability-probability plot (p-p plot). Bennett et al. (2013) noted a graph plotting the cumulative probability of a particular distribution (often a normal distribution). If values fall of the diagonal of the plot then the variables shares the same distribution as the one specified (Ghasemi & Zahesdials, 2012). Deviation from the diagonal show deviations from the distribution of interest (Yang et al., 2015).

Linearity. Linearity define the assumption the relationship between variables as linear. In practice, this assumption can virtually never be confirmed (Yang et al., 2015). Fortunately, minor deviations from this assumption do not affect multiple regression procedures (Nguyen et al., 2014). However, as noted by Nguyen et al. (2014) it is prudent examine a bivariate scatterplot of the variables of interest. Bennett et al. (2013) stated researchers could use scatterplots to determine the linearity and curvature of the model. Therefore, I tested the distribution of the residuals using scatterplots to determine if the curvature in the relationship is evident.

Homoscedasticity. The term *homoscedasticity* defines the consistency of the line of regression for all values of independent variables (Wilcox & Keselman, 2012). Wilcox and Keslman explained that the homoscedasticity assumption is variables have equal statistical variances. Homoscedasticity assumptions related to variables is important for using the least squares method of determining the regression coefficients (Berenson, 2013). An example of a violation in homoscedasticity or heteroscedasticity is the variance of the error term is not constant for all values of the independent variables (Wilcox & Keselman, 2012). Bamel et al. (2013) used a scatterplot to check homoscedasticity disturbances in research on business processes. Therefore, I checked for the homoscedasticity disturbances using scatterplots. Black (1999) recommended using a cross-sectional technique to allocate the data into separate groups. The normal distribution of each of these groups should be similar if there is no violation of homoscedasticity (Black, 1999).

Independence of error. The independence of error assumption requires the random error (the residual difference between each observed and average predicted value of dependent variables) be independent for each value of independent variables (Broberg et al., 2013). A violation occurs in this assumption when data are collected in sequence over a period of time or auto correlate thus, there is an increased chance of a Type I error (Wiedermann & von Eye, 2013). When data are collected in this manner, the errors for a particular time period are often correlated with those of the previous time period (Broberg et al., 2013). When the error term in one time-period is positively correlated with the error term in the previous time period, then, there is a problem of (positive first-order) autocorrelation. Bercu et al. (2014) used of the Durbin-Watson test to determine autocorrelation, which tests for serial correlation between errors. Therefore, I used the Durbin-Watson to detect autocorrelation.

Presence of outliers. Outliers are data points or observations whose value is "well separated" from the others in the data set being analyzed (Black 1999, p. 404). Identification and analysis of outliers is an important preliminary step because the presence of just one or two outliers can completely distort the value and may cause inaccurate standard error estimates (Wilcox & Keselman, 2012). Rousselet and Pernet (2012) and Filzmoser et al. (2012) employed scatterplots to detect outliers in research on brain behavior and geochemistry data. Therefore, I determined the presence of outliers by using scatterplots.

Multicollinearity. Multicollinearity refers to the situation where two or more explanatory variables in the regression model correlate, making it difficult to isolate their individual effects on the dependent variable (Filzmoser et al., 2012). Perfect collinearity exits when at least one predictor is a perfect linear combination of the others; two perfectly correlated predictors have a correlation coefficient of 1 (Zahari et al., 2014). If there is a perfect collinearity between predictors, it becomes impossible to obtain unique estimates of the regression coefficients because an infinite number of combinations of coefficient work equally well (Zahari et al., 2014).

Hannigan and Lynch (2013) and Zainodin, Noraini, and Yap (2011) suggested using the Pearson correlation coefficient to determine linear association among data, or for examining the relationship between pairs of variables. De Winter, Bastiaanse, Hilgenkamp, Evenhuis, and Echteld (2012) used a Person correlation coefficient to check multicollinearity. The verification process to estimate the linear dependency among variables consists of using the Pearson correlation coefficient. Osborne and Waters (2002), Zainodin et al., and De Winter et al. suggested variable transformation or generating new composite variables in order to satisfy the regression model if there are violations with any data. To determine multicollinearity among all variables, I generated a Pearson correlation in order to estimate the regression model, and for transforming or developing a composite variable where appropriate.

Sample size. Further, the sample size of this study consisted of business project loans made by MDBs in CA with an asset value of USD$4,857 billion. MDBs invest allocating scarce financial resources between public and private sectors competing for medium- and long- term capital project funding (Nair, 2013). I limited the sample to 66 loans made by MDB in CA and Caribbean. Readers of this research may apply the results obtained to all other MDBs. However, the result may not be representative of the entire of MDBs, which is a threat to validity. Thus, findings may only be limited to the research due to the limitations of the sample size, projects loans made by MDBs in CA and Caribbean, and period chosen.

Transition and Summary

In Section 2, I began by restating the purpose of this research and the reason for the study. Within Section 2 was a description of my role as researcher, identified and justified the research method and design, described the population and sampling method, as well an explanation the data collection process and instruments. Finally, Section 2 contained a sequential discussion on research question and hypotheses process followed and tested and a description of internal and external validity on measurement used in this research. Section 3 includes the overview of the study, presentation of the findings related to data analysis; the implications for social change, recommendations for actions, a discussion on the applications to professional practice, as well as further study and reflections; and finally, the summary and conclusions of the research.

Section 3: Application to Professional Practice and Implications for Change

The purpose of this quantitative study was to examine the relationship between the risk-free rate, volatility, market return, and expected return used by MDBs for CA loans. The evolution in the principles of managing financial institutions including MDBs has been dramatic. Managers of these institutions are aware that they need to understand and adapt to the influence on an efficient financial market. They also know that they need to test the local transactions against pricing and expected return signals generated by the market. Banks, including MDBs, must take risks to earn adequate expected returns. The use of strategies for measuring expected returns and risks affects profitability measurements. Understanding investment return and systematic risk as expressed by CAPM is critical to investment decisions by bankers at MDBs.

I collected data from databases, annual reports, and audited financial statements of MDBs and from the IMF, OECD, S&P Dow Jones U.S. Corporate Bond, and U.S. Department of the Treasury. The independent variables were the risk-free rate of return (R_f), project's volatility (β_p), and the expected return on the market (R_m). The dependent variable was the expected return (r_p) that is used by MDBs. I did not find evidence of a statistically significant relationship among the study variables. Thus, my independent variables were not useful predictors of expected return performance for any year. The results suggest that MDB leaders do not properly consider risk when allocating assets to borrowers. The findings of this study may provide guidelines for bank managers, investors, and policymakers who share an interest in developing countries.

Presented in this section are the results of my research and an explanation of how the findings may influence MDBs' investments. I also consider the implications of my research for social change and reflect on the doctoral study process.

Presentation of Findings

From this stated purpose, I developed the following overreaching research question: What is the relationship between the risk-free rate, volatility, market return, and expected return used by MDBs for CA loans? The independent variables included the risk-free rate of return (R_f), project's volatility (β_p), and the expected return on the market (R_m) while the dependent variable is the expected return (r_p) used by MDBs. Prior to calculating inferential statistics, I completed tests of assumptions and generated descriptive statistics.

Assumptions are statements that are accepted as true or certain by the researcher (Kirkwood & Price, 2013). Prior to my inferential testing, I considered assumptions of linearity and homoscedasticity. As shown in Figure 1-Figure 19, all years met the assumptions of linearity and homoscedasticity.

I also assessed the degree of multicollinearity for each individual year. Provide appropriate citations. As shown in Table 5-Table 23, there were no bivariate correlations greater than 0.80. Thus, there was no evidence of multicollinearity. With respect to outliers, there were no troublesome outliers needing removal from the data set.

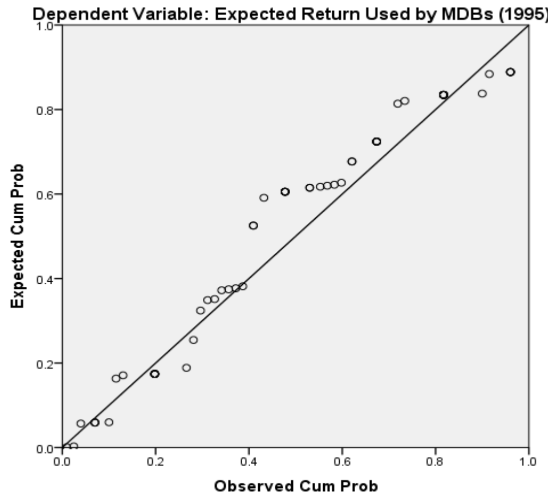

Figure 1. 1995 Normal P-P plot of standardized residuals.

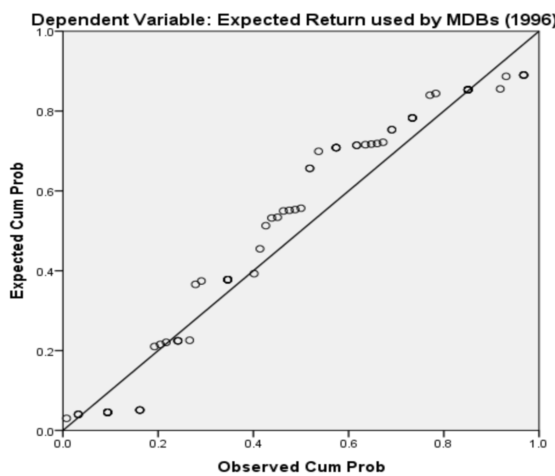

Figure 2. 1996 Normal P-P Plot of standardized residuals.

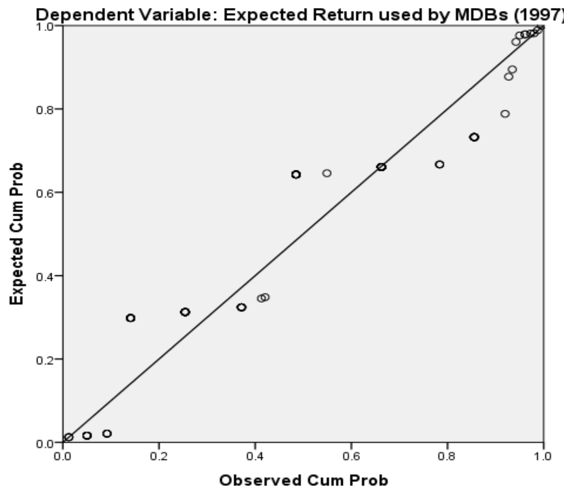

Figure 3. 1997 Normal P-P Plot of standardized residuals.

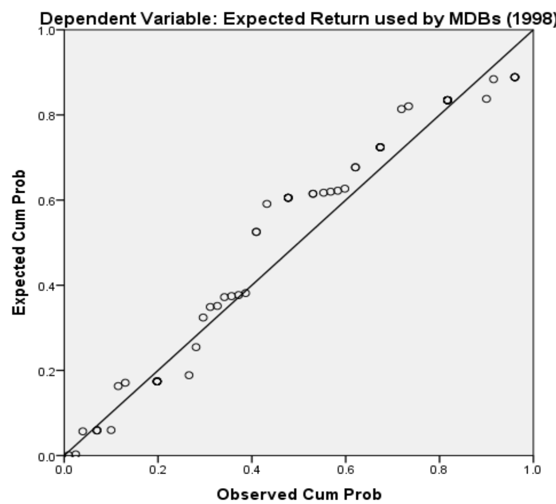

Figure 4. 1998 Normal P-P Plot of standardized residuals.

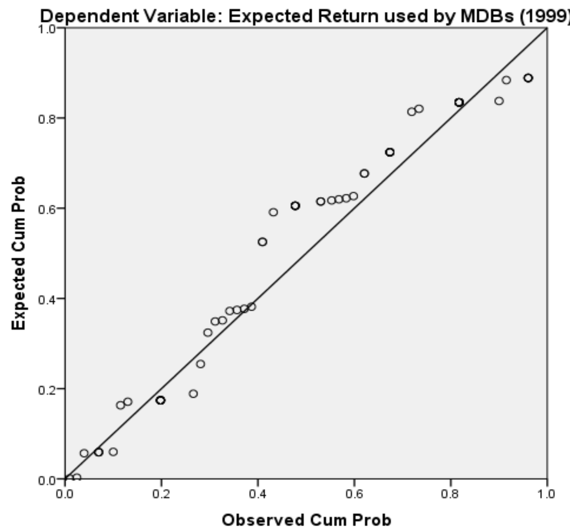

Figure 5. 1999 Normal P-P Plot of standardized residuals.

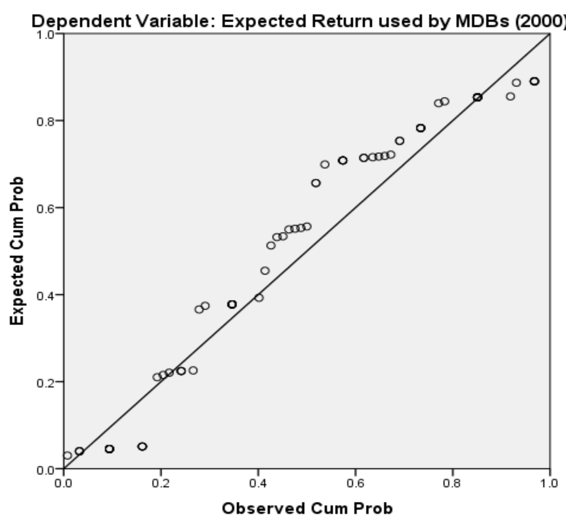

Figure 6. 2000 Normal P-P Plot of standardized residuals.

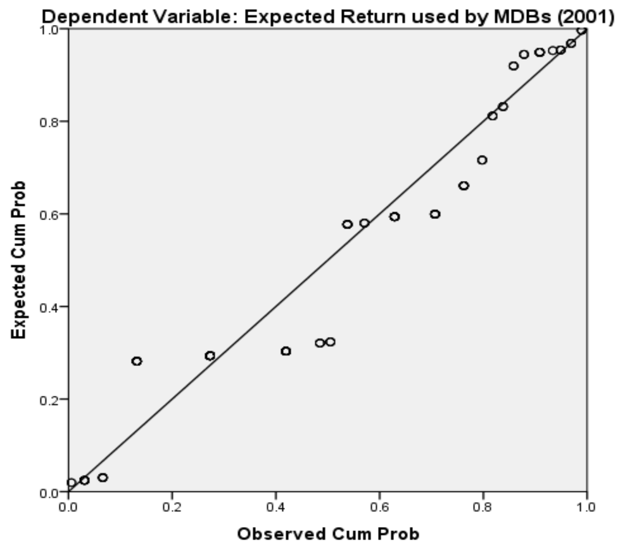

Figure 7. 2001 Normal P-P Plot of standardized residuals.

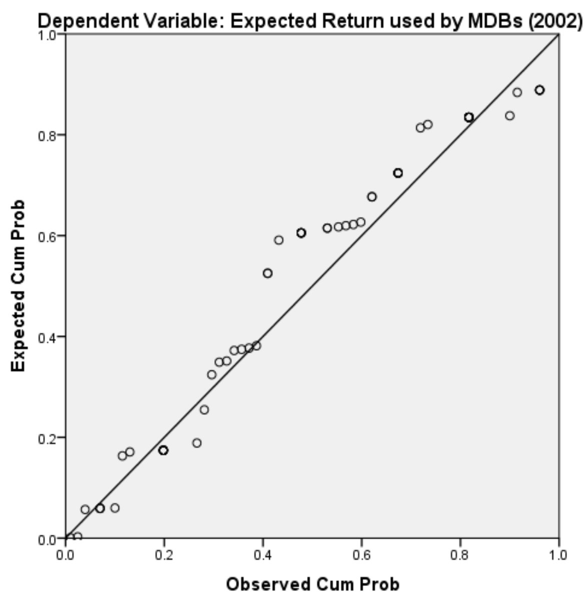

Figure 8. 2002 Normal P-P Plot of standardized residuals.

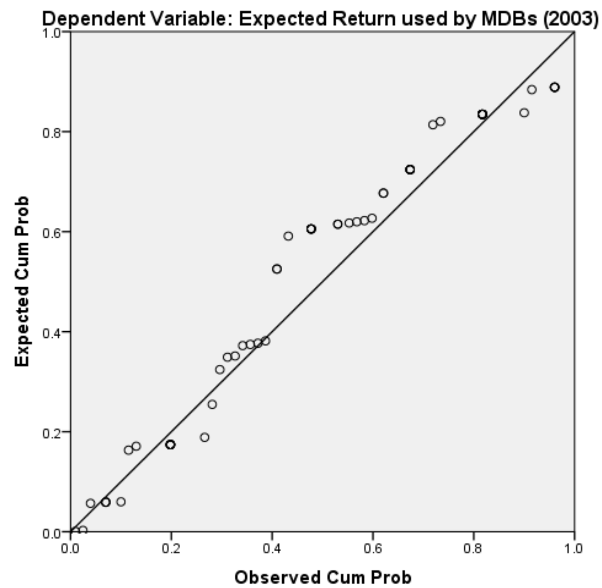

Figure 9. 2003 Normal P-P Plot of standardized residuals.

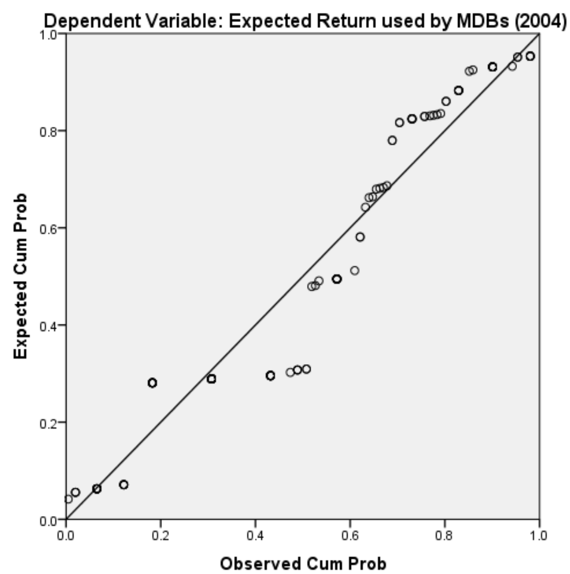

Figure 10. 2004 Normal P-P Plot of standardized residuals.

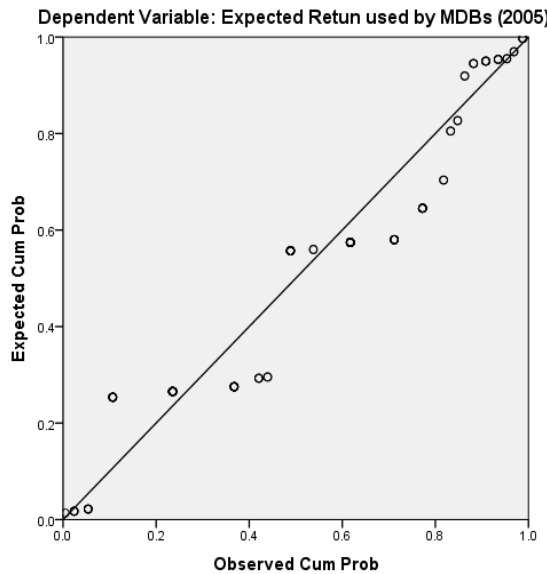

Figure 11. 2005 Normal P-P Plot of standardized residuals.

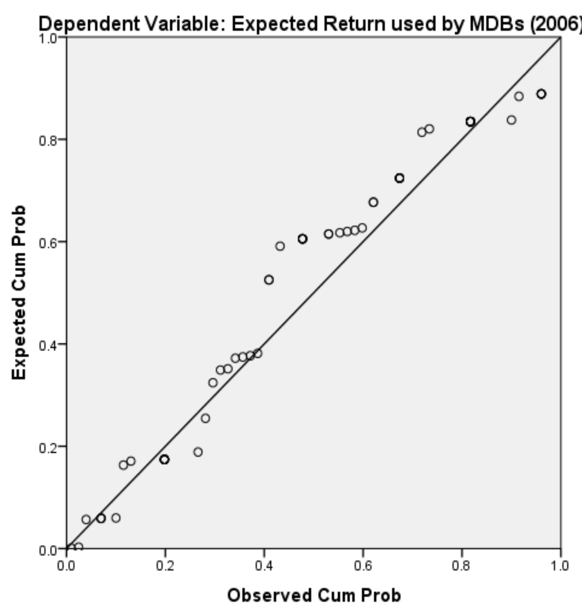

Figure 12. 2006 Normal P-P Plot of standardized residuals.

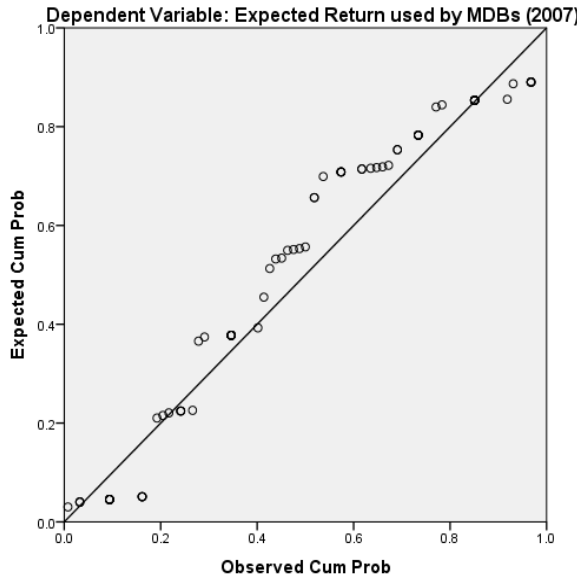

Figure 13. 2007 Normal P-P Plot of standardized residuals.

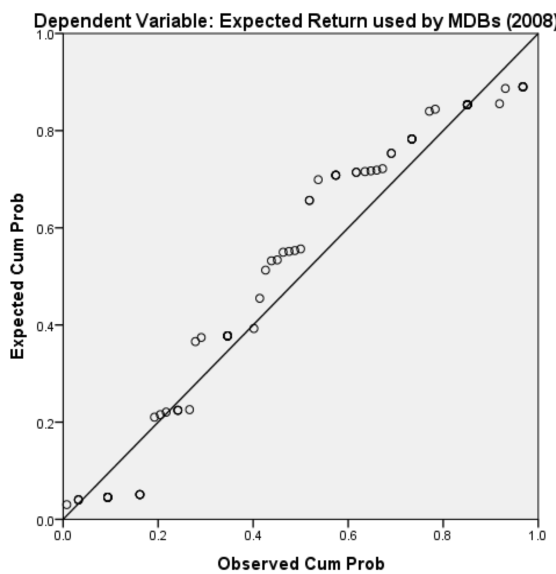

Figure 14. 2008 Normal P-P Plot of standardized residuals.

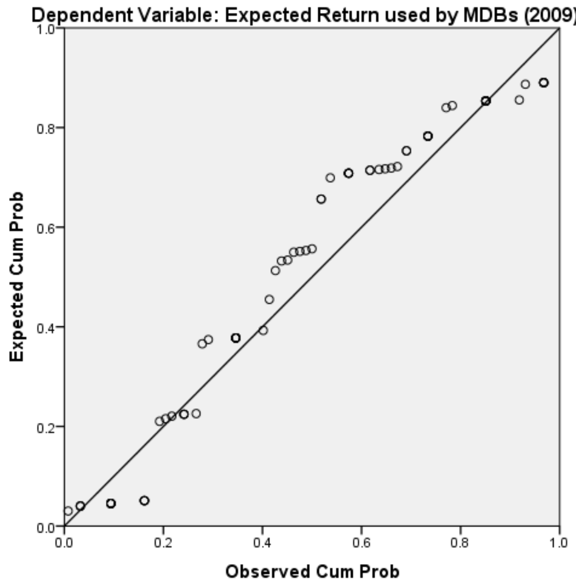

Figure 15. 2009 Normal P-P Plot of standardized residuals.

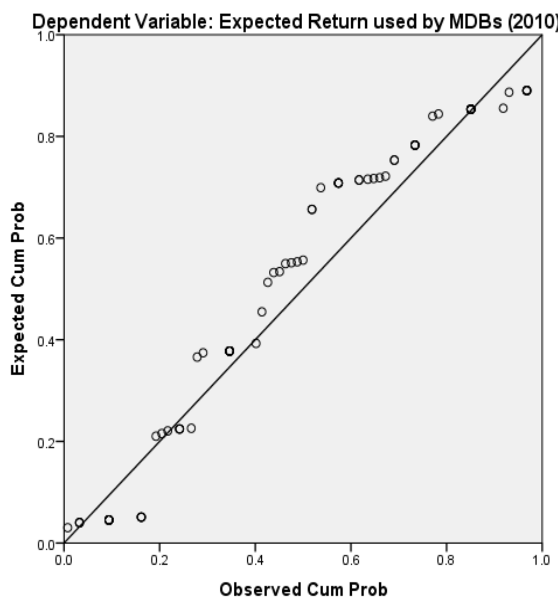

Figure 16. 2010 Normal P-P Plot of standardized residuals.

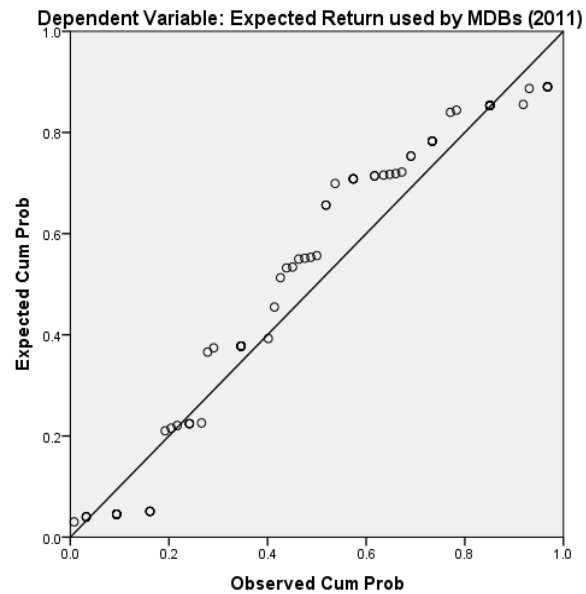

Figure 17. 2011 Normal P-P Plot of standardized residuals.

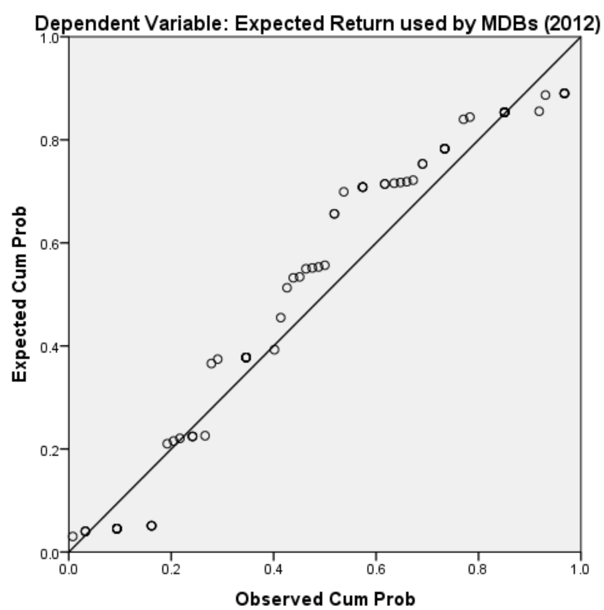

Figure 18. 2012 Normal P-P Plot of standardized residuals.

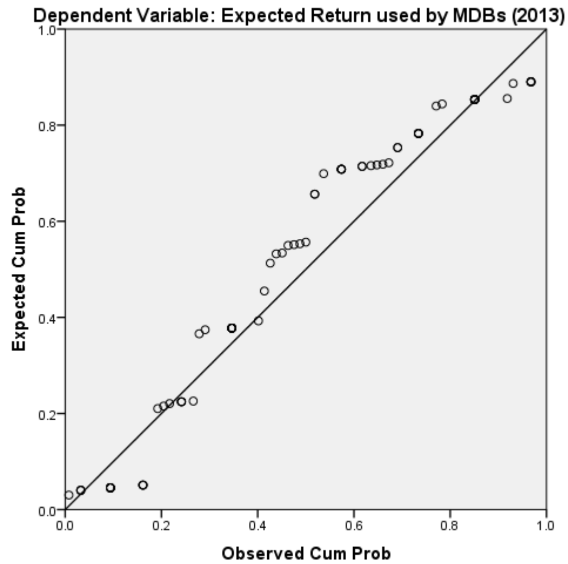

Figure 19. 2013 Normal P-P Plot of standardized residuals.

For each year, using normal probability plots (P-P) of the standardize residuals, I did not detect any violations of normality. As shown in Figure 1 though Figure 19, the plots of residuals fit in close proximity to the expected line thus the distribution of all residuals is normal. In addition, the Durbin-Watson statistic, for the years 1995 to 2013, were 1.72, 1.71, 1.69, 1.89, 1.79, 1.79, 1.72, 1.77, 1.82, 1.83, 1.82, 1.84, 1.81, 1.83, 1.85, 1.86, 1.83, 1.73, and 1.82, respectively (Tables 71 to 89). Because all measures were close in proximity to the Number 2, I assume the residuals are independent. There is no evidence of autocorrelation.

I assessed the degree of multicollinearity for each individual year from 1995 to 2013. As indicated by Tables 5 to 23, there were no bivariate correlations greater than 0.80. There was no evidence of multicollinearity. With respect to outliers, there were no troublesome outliers needing removal from the data set.

Table 5

1995 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.061	-.015	-.279
	Risk free of return	.306	1.000	.326	.357
	Project's volatility	.012	.326	1.000	-.270
	Expected return on the market	.004	.351	-.272	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	-.303	.442	-.272
	Risk free of return	.326	-	.004	.002
	Project's volatility	.316	.004	-	.012
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 6

1996 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.210	.082	-.269
	Risk free of return	.316	1.000	-.057	.1000
	Project's volatility	.012	.057	1.000	-.057
	Expected return on the market	.004	.342	-.057	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	-.024	.231	-.279
	Risk free of return	.316	-	.323	.002
	Project's volatility	.327	.004	-	.012
	Expected return on the market	.323	.003	.323	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 7

1997 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.183	-.139	-.270
	Risk free of return	.366	1.000	.326	.357
	Project's volatility	.012	.326	1.000	-.271
	Expected return on the market	.004	.334	-.249	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	-.048	.093	-.279
	Risk free of return	.322	-	.004	.002
	Project's volatility	.306	.004	-	.012
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 8

1998 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	.030	.021	-.242
	Risk free of return	.346	1.000	-.057	-.366
	Project's volatility	.012	-.057	1.000	-.057
	Expected return on the market	.004	.340	-.057	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	.392	.412	-.219
	Risk free of return	.322	-	.023	.002
	Project's volatility	.316	.004	-	.012
	Expected return on the market	.012	.001	.323	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 9

1999 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	.052	.070	-.239
	Risk free of return	.316	1.000	.326	.350
	Project's volatility	.012	.326	1.000	-.219
	Expected return on the market	.004	.337	-.229	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	.301	.250	-.279
	Risk free of return	.311	-	.004	.002
	Project's volatility	.319	.004	-	.012
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 10

2000 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.062	-.019	-.239
	Risk free of return	.311	1.000	.326	.377
	Project's volatility	.012	.326	1.000	-.229
	Expected return on the market	.004	.350	-.299	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	-.301	.442	-.219
	Risk free of return	.336	-	.004	.002
	Project's volatility	.320	.004	-	.012
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 11

2001 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.210	.081	-.209
	Risk free of return	.322	1.000	.326	.357
	Project's volatility	.012	.326	1.000	-.229
	Expected return on the market	.004	.307	-.219	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	.221	.235	-.219
	Risk free of return	.316	-	.004	.002
	Project's volatility	.321	.004	-	.012
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 12

2002 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.179	-.137	-.219
	Risk free of return	.306	1.000	.439	-.318
	Project's volatility	.322	.158	1.000	-.277
	Expected return on the market	.004	.303	-.209	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	.045	.096	-.232
	Risk free of return	.302	-	.004	.002
	Project's volatility	.322	.031	-	.011
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 13

2003 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.221	.082	-.215
	Risk free of return	.311	1.000	.439	.328
	Project's volatility	.012	.158	1.000	-.276
	Expected return on the market	.004	.357	-.279	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	.023	.231	-.223
	Risk free of return	.306	-	.004	.002
	Project's volatility	.316	.011	-	.001
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 14

2004 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.181	-.144	-.219
	Risk free of return	.306	1.000	.326	-.357
	Project's volatility	.012	.326	1.000	-.209
	Expected return on the market	.004	.357	-.279	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	.048	.096	-.249
	Risk free of return	.322	-	.004	.002
	Project's volatility	.302	.004	-	.012
	Expected return on the market	.012	.001	.011	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 15

2005 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.060	-.016	-.272
	Risk free of return	.326	1.000	.439	.328
	Project's volatility	.012	.326	1.000	-.274
	Expected return on the market	.004	.328	-.168	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	-.307	.445	-.209
	Risk free of return	.310	-	.004	.002
	Project's volatility	.311	.003	-	.001
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 16

2006 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.061	-.015	-.279
	Risk free of return	.316	1.000	.326	.357
	Project's volatility	.012	.324	1.000	-.221
	Expected return on the market	.004	.321	-.272	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	.-.302	.342	-.272
	Risk free of return	.316	-	.004	.002
	Project's volatility	.316	.004	-	.012
	Expected return on the market	.012	.001	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 17

2007 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.183	-.139	-.270
	Risk free of return	.362	1.000	.336	-.327
	Project's volatility	.011	.316	1.000	-.271
	Expected return on the market	.003	.334	-.249	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	.048	.093	-.279
	Risk free of return	.302	-	.004	.002
	Project's volatility	.305	.004	-	.012
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 18

2008 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.062	-.019	-.239
	Risk free of return	.301	1.000	.326	.247
	Project's volatility	.010	.324	1.000	-.229
	Expected return on the market	.002	.330	-.219	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	-.341	.342	-.219
	Risk free of return	.336	-	.004	.002
	Project's volatility	.320	.004	-	.012
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 19

2009 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	.043	.069	-.229
	Risk free of return	.320	1.000	.439	.328
	Project's volatility	.012	.326	1.000	-.279
	Expected return on the market	.004	.328	-.168	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	.303	.250	-.239
	Risk free of return	.316	-	.004	.002
	Project's volatility	.336	.003	-	.001
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 20

2010 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.033	.019	-.249
	Risk free of return	.306	1.000	.422	.344
	Project's volatility	.012	.336	1.000	-.243
	Expected return on the market	.004	.322	-.168	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	.351	.411	-.222
	Risk free of return	.326	-	.004	.002
	Project's volatility	.320	.003	-	.003
	Expected return on the market	.012	.011	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 21

2011 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.220	.082	-.219
	Risk free of return	.336	1.000	.326	.357
	Project's volatility	.012	.326	1.000	-.229
	Expected return on the market	.004	.357	-.279	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	.021	.230	-.259
	Risk free of return	.311	-	.004	.002
	Project's volatility	.323	.004	-	.012
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 22

2012 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.062	-.019	-.239
	Risk free of return	.310	1.000	.321	-.377
	Project's volatility	.012	.326	1.000	-.220
	Expected return on the market	.014	.350	-.299	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	-.311	.342	-.219
	Risk free of return	.336	-	.004	.002
	Project's volatility	.320	.014	-	.012
	Expected return on the market	.012	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Table 23

2013 Correlation Matrix

		Correlations			
		Expected return used by MDBs	Risk-free on return	Project's volatility	Expected return on the market
Pearson Correlation	Expected return used by MDBS	1.000	-.211	.082	-.215
	Risk free of return	.302	1.000	.339	.328
	Project's volatility	.012	.158	1.000	-.266
	Expected return on the market	.004	.357	-.279	1.000
Sig. (1-tailed)	Expected return used by MDBS	-	.023	.231	-.223
	Risk free of return	.314	-	.004	.002
	Project's volatility	.316	.322	-	.001
	Expected return on the market	.011	.002	.012	-
N	Expected return used by MDBS	66	66	66	66
	Risk free of return	66	66	66	66
	Project's volatility	66	66	66	66
	Expected return on the market	66	66	66	66

Descriptive Statistics

Descriptive research techniques allow a researcher to gain an understanding of the data set while in the exploratory phase of a research project (Sekaran & Bougie, 2013). These exploratory techniques help a researcher to understand sample mean and sample standard deviation, skewness, and kurtosis. I presented tables in this section to better understand the distribution of data related to project volatility, average annual expected return, average index performance related to the Dow Jones U.S. corporate bonds, and average risk-free rate. In this section, I also present information about the sample mean, standard deviation, skewness, and kurtosis of my variables.

As depicted in Table 25, the average expected return (r_p) from 1995 to 2013 adjusted by risk-free rate of return, (R_f), project's volatility (β_p) and the expected return on the market (R_m) in comparison with the expected return (r_p) used by MDBs in CA

(Table 24) increased according to the level of risk from greatest risk (Level 1) to less risk (Level 5).

Table 24

Project's volatility (β_p) by Level of Risk from greatest risk (Level 1) to less risk (Level 5). Descriptive Statistics by Default Risk, 31 G-SIFIs Banks

Level 1	Level 2	Level 3	Level 4	Level 5
1.71	1.54	1.26	1.08	0.78

Note. G-SFIs = Global List of Systemically Important Financial Institutions.
Adapted from "Business models of banks, leverage and the distance-to-default" by Roulet & Blundell-Wignall, 2013, *OECD Journal: Financial Market Trends, 2012, 7-34, 2012,* p.10

The expected return (r_p) or pricing applied by MDBs in CA are show in Table 25. These expected returns are the future receipts by MDBs receiving for taking the risk of making investments, and the cost of funds from creditors and owners MDBs as suppliers of capital demand for providing funds (Drumond & Jorge, 2013). The average of expected return (pricing) in 2013 used by MDBs for loans in CA countries was as follows: CABEI 5.51%, CAF 2.57%, IDB 2.65%, and The World Bank 1.51% (Central American Bank for Economic Integration, 2013; Corporación Andina de Fomento, 2013; Inter-American Development Bank, 2013; The World Bank, 2013).

Table 25

Average Annual Expected Return (Pricing) Used in December 2013 by MDBs in CA Countries

	Expected return used by MDBs in CA Countries (pricing used to funded loans)		
Expected Return	Expected Return	Expected Return	Expected Return
5.51%	2.57%	2.65%	1.51%

Note. Average expected return (Pricing) = Yearly average.

Corporate bonds debt instrument obligates the issuer to pay a percentage of the bond's par value on designated dates (the coupon payments) and to repay the principal value at maturity. The expected return, according to the maturity of loans applied in 2013 was 8.43%, as seen in Table 26. I used this value to calculate the risk premium (risk-free rate plus expected return on the market) as the additional required rate of return paid to MDBs was the index performance: Dow Jones U.S. corporate bond (S&P Dow Jones Indices, 2013). The riskier the investment, the higher the premium (Feunou, Fontaine, Taamouti, & Tedongap, 2013).

Table 26

Index Performance: Dow Jones U.S. Corporate Bond. Annualized Return (%)

Data as of December 31, 2013

Expected return on the market (R_m)		
1-Year	3-Year	5-Year
-1.59	5.66	8.43

One attribute of a bond influencing its interest rate is the risk of default which occurs when the country issuer of the bond is unable to make interest payments when any of the face value when the bond matures (Mishkin, 2009). U.S. Treasury bonds have no default risk because the federal government can always increase taxes to pay off the obligations. The spread between the interest rate on bonds with default risk (bond corporate bonds) and default-free risk (U.S. bonds) called the risk premium (Mishkin, 2009).

Default risk is important to determine the risk premium; purchasers of bonds need to know whether a bond is likely to default. Credit-rating agencies typically provide this information. Table 27 provides the rating and their description for the S&P credit-rating agency. Bonds with relatively low risk of default called investment-grade and have a rating of BBB and above. Bonds with ratings below BBB have a higher default risk and aptly speculative-grade or junk bonds (S&P, 2016).

The risk-free rate and the country bond rating shows in Table 27 are the interest rate paid on investments providing a sure expected return, like U.S. Treasury bonds. According to U.S. Department of Treasury (2013), the risk-free rate with a maturity to 6 years was 1.74% default-free bonds, and for a maturity to 10 years was 2.35% default-free bonds in order to gain a return stable and reliable. This research to calculate the CAPM used both 1.74% and 2.35% (table 27) because the average repayment loans to MDBs was between 6 and 10 years (Central American Bank for Economic Integration, 2013; Corporación Andina de Fomento, 2013; Inter-American Development Bank, 2013; The World Bank, 2013).

Table 27

Risk-Free Rate (U.S. Department of the Treasury) and Country Rating (S&P) in December 2013

Risk-free rate according to repayment a loan (average in years) by MDBs			
5 years	6 years	8 years	10 years
1.17%	1.74%	1.74%	2.35%
	Country	Rating (bond rating)	
	Guatemala	BB+ (noninvestment grade)	
	El Salvador	BB- (speculative)	
	Honduras	B (Highly speculative)	
	Nicaragua	B- (Highly speculative	
	Costa Rica	BB+ (noninvestment grade)	
	Belize	CCC (in poor standing)	
	Panama	BBB (lower medium grade)	

Table 28

Statistical Summary of Sample Mean and Sample Standard Deviation, Skewness and Kurtosis for the Expected Return (r_p) by Level of Risk adjusted by (R_f, β_p, R_m) for the Sample Period from 1995 to 2013

	Mean	Std. Deviation	Skewness		Kurtosis	
			Statistic	Std. Error	Statistic	Std. Error
Level 1	12.91%	.59848	-.642	.913	-.667	2.000
Level 2	12.04%	.26134	-.115	1.014	1.507	2.619
Level 3	10.12%	.13793	1.740	1.014	3.309	2.619
Level 4	8.97%	.03686	-.404	1.014	1.591	2.619
Level 5	6.96%	.10614	.000	1.014	1.500	2.619

Inferential Results

The overreaching research question for my study was: What is the relationship between the risk-free rate, volatility, market return, and expected return used by MDBs for CA loans? The study included the three independent variables: the risk-free rate of return (R_f), project's volatility (β_p) and the expected return on the market (R_m). The dependent variable was the expected return (r_p) used by MDBs. After reviewing the literature on mutual fund performance, I developed the following research questions and hypotheses:

RQ1: What is the difference between the expected return (r_p) adjusted by (R_f, β_p, R_m) in comparison with the (r_p) used by MDBs?

RQ2: What is the relationship between the expected return (r_p) adjusted by (R_f, β_p, R_m) with the (r_p) used by MDBs?

The null and alternative hypotheses tested in this quantitative correlation research are as follows:

$H_0$1: The expected return (r_p) adjusted by (R_f, β_p, R_m) is not above in comparison with the (r_p) used by MDBs in CA.

$H_1$1: The expected return (r_p) adjusted by (R_f, β_p, R_m) is above in comparison with the (r_p) used by MDBs in CA.

$H_0$2: There is not a statistically significant relationship between the (r_p) adjusted by (R_f, β_p, R_m) with the (r_p) used by MDBs in CA.

$H_1$2: There is a statistically significant relationship between the (r_p) adjusted by (R_f, β_p, R_m) with the (r_p) used by MDBs in CA.

The CAPM is one of the most influential innovations in financial theory in the latter half of the 20th century to assess the expected return (Berkman, 2013). To provide a thorough examination of the expected return used by MDBs, I identified 4 CAPM expected return outcome simulation, consolidated from 1995 to 2013, and supposing a risk-free rate of return (R_f) exists and has return (R_f) to estimate the expected return (r_p) adjusted by (R_f, β_p, R_m) in comparison with the (r_p) used by MDBs in CA.

The expected return showed from table 29 to 32 were performed using the financial modeling by Benninga (2014), and the project's volatility *(β_p)* of U.S. and European international banks with and equity market capitalization about 5 billion USD (Roulet & Blundell-Wignall, 2013) as follows:

1. Individual optimization: Assuming investors (MDBs) optimize based on the expected return and standard deviation of their investments returns (mean-variance preferences), each individual MDBs optimal investments falls on the line $E(r_p) = r_f + [E(r_x) – r_f]$, where investment *x* is an investment that maximizes $E(r_y) – r_f / \sigma_y$ for all feasible investments *y*. As depicted tables from 29 to 32, I computed/simulated investments (*x*) by using the formula $x=\{x_1, x_2, \ldots\ldots\ldots, x_n\}=S^{-1}[R\text{-}r_f] / \sum S^{-1}[R\text{-}r_f]$, where S is the variance-covariance matrix of risky investment return and *R* is the vector of expected investment returns (Benninga, 2014).

2. General equilibrium: If all investors (MDBs) agree about the statistical assumptions of the model – the variance-covariance matrix *S* and the vector of expected investment return *R* – and if a risk free of return exists (R_f), the individual investment return are as follow: $E(r_i)+((Cov(r_i, r_M)/\sigma^2_M))[E(r_M)\text{-}r_f]$, where *M* denotes the market investments – the value –weighted investment of all risky investments. The expression $Cov(r_i, r_M) / \sigma^2_M$ is generally termed the asset´s beta $\beta_i = Cov(r_i, r_M) / \sigma^2_M$ (Benninga, 2014).

As depicted in Tables 29 to 32, the expected return (r_p) adjusted by (R_f, β_p, R_m) in comparison with the (r_p) used by MDBs in CA increased according to the level of risk from greatest risk (Level 1) to less risk (Level 5). The average (1995-2013) of these expected return simulations were 13.18%, 12.04%, 10.07%, 8.97%, 6.96% , 13.18%, 12.04%, 10.07%, 8.97%, 6.96%, 13.58%, 12.35%, 10.32%, 9.01%, 6.83%, 12.57%, 11.71%, 10.01%, 8.92, and 7.09%. As noted from Tables 29 to 32, the expected returns used by MDBs underperform the market. The null hypothesis was the expected return (r_p) adjusted by (R_f, β_p, R_m) was not above in comparison with the (r_p) used by MDBs in CA. The alternative hypothesis was the expected return (r_p) adjusted by (R_f, β_p, R_m) was above in comparison with the (r_p) used by MDBs in CA. As a result, I accepted the alternative hypotheses related to the expected return (r_p) adjusted by (R_f, β_p, R_m) was above in comparison with the (r_p) used by MDBs in CA.

For the years 1995 to 2013, I conducted a multiple linear regression, where α = .05 to determine if there was a statistically significant relationship between the risk-free rate of return (R_f), project's volatility (β_p), the expected return on the market (R_m), and the expected return (r_p) used by MDBs. The independent variables were the risk-free rate of return (R_f), project's volatility (β_p), and the expected return on the market (R_m). The dependent variable was the expected return (r_p) used by MDBs. The null hypothesis was there is not a statistically significant relationship between the (r_p) adjusted by (R_f, β_p, R_m) with the (r_p) used by MDBs in CA. The alternative hypothesis was there is a statistically significant relationship between the (r_p) adjusted by (R_f, β_p, R_m) with the (r_p) used by MDBs in CA.

As depicted in Tables 33 to 51, there were no years indicating a significant relationship, as the *p*-value was .467, .299, .206, .222, .299, .222, .212, .193, .120, .432, .212, .121, .120, .415, .415, .123, .096, .087, .096 for the years 1995 to 2013 respectively, which exceeded alpha of 0.05. Consequently, further examination of individual *t*-tests would lead to erroneous conclusions (Elliott & Woodward, 2007). The regression coefficients are located in in Tables 52 to 70 as they may lead to additional research. Thus, the risk-free rate of return (R_f), project's volatility (β_p), and the expected return on the market (R_m) were not good predictors of the expected return (r_p) used by MDBs. As a result, I accepted the null hypotheses related to there was not a statistically significant relationship between the (r_p) adjusted by (R_f, β_p, R_m) with the (r_p) used by MDBs in CA.

Table 29

Simulation #1 (Consolidated Outcome From 1995 to 2013) CAPM

		Simulation the expected return (r_p) adjusted by (R_f, β_p, *Rm)*			
		The expected return (r_p) adjusted by (R_f, β_p, R_m)			The expected return (r_p) used by MDBs
Level 1	Level 2	Level 3	Level 4	Level 5	5.51%
13.18%	12.04%	10.07%	8.97%	6.96%	

Table 30

Simulation #2 (Consolidated Outcome From 1995 to 2013) CAPM

		Simulation the expected return (r_p) adjusted by (R_f, β_p, *Rm)*			
		The expected return (r_p) adjusted by (R_f, β_p, R_m)			The expected return (r_p) used by MDBs
Level 1	Level 2	Level 3	Level 4	Level 5	2.65%
13.18%	12.04%	10.07%	8.97%	6.96%	

Table 31

Simulation #3 (Consolidated Outcome From 1995 to 2013) CAPM

		Simulation the expected return (r_p) adjusted by (R_f, β_p, *Rm)*			
		The expected return (r_p) adjusted by (R_f, β_p, R_m)			The expected return (r_p) used by MDBs
Level 1	Level 2	Level 3	Level 4	Level 5	2.57%
13.58%	12.35%	10.32%	9.01%	6.83%	

Table 32

Simulation #4 (Consolidated Outcome From 1995 to 2013) CAPM

Simulation the expected return (r_p) adjusted by (R_f, β_p, Rm)					
The expected return (r_p) adjusted by (R_f, β_p, R_m)					The expected return (r_p) used by MDBs
Level 1	Level 2	Level 3	Level 4	Level 5	1.51%
12.57%	11.71%	10.01%	8.92%	7.09%	

Table 33

1995 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	108.946	32	3.405	1.029	.467[b]
1	Residual	109.175	33	3.308		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 34

1996 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	32.096	8	4.012	1.229	.299[b]
1	Residual	186.026	57	3.264		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 35

1997 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	81.336	20	4.067	1.338	.206[b]
1	Residual	136.786	45	3.040		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 36

1998 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	23.329	5	4.680	1.442	.222[b]
1	Residual	194.723	60	3.245		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 37

1999 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
1	Regression	32.096	8	4.012	1.229	.299[b]
	Residual	186.026	57	3.264		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 38

2000 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
1	Regression	23.399	5	4.680	1.442	.222[b]
	Residual	194.723	60	3.245		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 39

2001 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	101.556	18	5.642	2.275	.212[b]
1	Residual	116.565	47	2.480		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 40

2002 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	51.656	8	6.457	2.211	.193[b]
1	Residual	116.466	57	2.920		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 41

2003 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	97.163	26	3.737	1.205	.120[b]
1	Residual	120.958	39	3.101		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 42

2004 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	61.830	11	5.621	1.942	.432[b]
1	Residual	120.958	39	3.101		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 43

2005 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	71.812	22	3.264	.959	.212[b]
1	Residual	146.310	33	3.101		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 44

2006 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	73.954	21	3.522	1.075	.121[b]
1	Residual	144.168	44	3.272		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 45

2007 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	41.880	8	5.235	1.693	.120[b]
1	Residual	176.242	57	3.092		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (bet), Expected return on the market.

Table 46

2008 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	27.859	8	3.482	1.043	.415[b]
1	Residual	190.263	57	3.338		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 47

2009 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	27.859	8	3.482	1.043	.415[b]
1	Residual	190.263	57	3.338		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 48

2010 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	120.058	23	5.220	2.236	.123[b]
1	Residual	98.064	42	2.335		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 49

2011 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	30.776	5	6.155	1.971	.096[b]
1	Residual	187.345	60	3.122		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 50

2012 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	101.786	16	6.362	2.679	.087[b]
1	Residual	116.336	49	2.374		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 51

2013 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	*Df*	Mean Square	*F*	*Sig.*
	Regression	50.625	8	6.328	2.153	.045[b]
1	Residual	167.497	57	2.939		
	Total	218.122	65			

a. Dependent Variable: Expected return used by MDBs

b. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

Table 52

1995 Regression Coefficients and Collinearity Statistics

Model		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	3.276	3.303		.992	.325		
	Risk-free of return	.270	.259	.157	1.042	.301	.698	1.433
	Project's volatility	-.104	.173	-.092	-.599	.551	.676	1.479
	Expected return on the market	.029	.229	.019	.127	.899	.715	1.399

Coefficients[a]

a. Dependent variable: Expected return used by MDBs

Table 53

1996 Regression Coefficients and Collinearity Statistics

Model		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	3.630	3.662		.991	.325		
	Risk-free of return	.270	.267	.111	.838	.405	.912	1.276
	Project's volatility	-.033	.223	-.018	-.124	.901	.784	1.276
	Expected return on the market	-.024	.227	-.016	-.109	.914	.759	1.318

Coefficients[a]

a. Dependent variable: Expected return used by MDBs

Table 54

1997 Regression Coefficients and Collinearity Statistics

Model		Coefficients[a] Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	2.265	3.499		.647	.325		
	Risk-free of return	.182	.225	.106	.838	.812	.920	1.087
	Project's volatility	.135	.141	.120	.955	.901	.988	1012
	Expected return on the market	-.057	.202	-.037	-.281	.914	.912	1.097

a. Dependent variable: Expected return used by MDBs

Table 55

1998 Regression Coefficients and Collinearity Statistics

Model		Coefficients[a] Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	3.276	3.303		.992	.325		
	Risk-free of return	.270	.259	.157	1.042	.301	.698	1.433
	Project's volatility	-.104	.173	-.092	-.599	.551	.676	1.479
	Expected return on the market	.029	.229	.019	.127	.899	.715	1.399

a. Dependent variable: Expected return used by MDBs

Table 56

1999 Regression Coefficients and Collinearity Statistics

Model		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	3.630	3.662		.991	.325		
	Risk-free of return	.270	.267	.111	.838	.405	.912	1.276
	Project's volatility	-.033	.223	-.018	-.124	.901	.784	1.276
	Expected return on the market	-.024	.227	-.016	-.109	.914	.759	1.318

Coefficients[a]

a. Dependent variable: Expected return used by MDBs

Table 57

2000 Regression Coefficients and Collinearity Statistics

Model		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	3.630	3.662		.991	.325		
	Risk-free of return	.190	.227	.111	.838	.405	.912	1.096
	Project's volatility	-.033	.267	-.018	-.124	.901	.784	1.276
	Expected return on the market	-.024	.223	-.016	-.109	.914	.759	1.318

Coefficients[a]

a. Dependent variable: Expected return used by MDBs

Table 58

2001 Regression Coefficients and Collinearity Statistics

Model		Coefficients[a]						
		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	3.276	3.303		.992	.325		
	Risk-free of return	.270	.259	.157	1.042	.301	.698	1.433
	Project's volatility	-.104	.173	-.092	-.599	.551	.676	1.479
	Expected return on the market	.029	.229	.019	.127	.899	.715	1.399

a. Dependent variable: Expected return used by MDBs

Table 59

2002 Regression Coefficients and Collinearity Statistics

Model		Coefficients[a]						
		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	6.487	2.235		2.902	.005		
	Risk-free of return	.270	.259	-.056	-.391	.697	.761	1.433
	Project's volatility	-.106	.270	-.092	-.599	.551	.676	1.479
	Expected return on the market	-.520	.570	.019	.127	.899	.715	1.399

a. Dependent variable: Expected return used by MDBs

Table 60

2003 Regression Coefficients and Collinearity Statistics

Model		Coefficients[a]						
		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	6.487	2.235		2.902	.005		
	Risk-free of return	.270	.259	-.056	-.391	.697	.761	1.433
	Project's volatility	-.106	.270	-.092	-.599	.551	.676	1.479
	Expected return on the market	-.520	.570	.019	.127	.899	.715	1.399

a. Dependent variable: Expected return used by MDBs

Table 61

2004 Regression Coefficients and Collinearity Statistics

Model		Coefficients[a]						
		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	3.630	3.662		.991	.325		
	Risk-free of return	.270	.267	.111	.838	.405	.912	1.276
	Project's volatility	-.033	.223	-.018	-.124	.901	.784	1.276
	Expected return on the market	-.024	.227	-.016	-.109	.914	.759	1.318

a. Dependent variable: Expected return used by MDBs

Table 62

2005 Regression Coefficients and Collinearity Statistics

Coefficients[a]								
Model		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	3.276	3.303		.992	.325		
	Risk-free of return	.270	.259	.157	1.042	.301	.698	1.433
	Project's volatility	-.104	.173	-.092	-.599	.551	.676	1.479
	Expected return on the market	.029	.229	.019	.127	.899	.715	1.399

a. Dependent variable: Expected return used by MDBs

Table 63

2006 Regression Coefficients and Collinearity Statistics

Coefficients[a]								
Model		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	2.265	3.499		.647	.325		
	Risk-free of return	.182	.225	.106	.838	.812	.920	1.087
	Project's volatility	.135	.141	.120	.955	.901	.988	1.012
	Expected return on the market	-.057	.202	-.037	-.281	.914	.912	1.097

a. Dependent variable: Expected return used by MDBs

Table 64

2007 Regression Coefficients and Collinearity Statistics

Model		Coefficients[a]						
		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	3.276	3.303		.992	.325		
	Risk-free of return	.270	.259	.157	1.042	.301	.698	1.433
	Project's volatility	-.104	.173	-.092	-.599	.551	.676	1.479
	Expected return on the market	.029	.229	.019	.127	.899	.715	1.399

a. Dependent variable: Expected return used by MDBs

Table 65

2008 Regression Coefficients and Collinearity Statistics

Model		Coefficients[a]						
		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	3.630	3.662		.991	.325		
	Risk-free of return	.270	.267	.111	.838	.405	.912	1.276
	Project's volatility	-.033	.223	-.018	-.124	.901	.784	1.276
	Expected return on the market	-.024	.227	-.016	-.109	.914	.759	1.318

a. Dependent variable: Expected return used by MDBs

Table 66

2009 Regression Coefficients and Collinearity Statistics

Coefficients[a]

Model		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	3.276	3.303		.992	.325		
	Risk-free of return	.270	.259	.157	1.042	.301	.698	1.433
	Project's volatility	-.104	.173	-.092	-.599	.551	.676	1.479
	Expected return on the market	.029	.229	.019	.127	.899	.715	1.399

a. Dependent variable: Expected return used by MDBs

Table 67

2010 Regression Coefficients and Collinearity Statistics

Coefficients[a]

Model		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	2.265	3.499		.647	.325		
	Risk-free of return	.182	.225	.106	.838	.812	.920	1.087
	Project's volatility	.135	.141	.120	.955	.901	.988	1012
	Expected return on the market	-.057	.202	-.037	-.281	.914	.912	1.097

a. Dependent variable: Expected return used by MDBs

Table 68

2011 Regression Coefficients and Collinearity Statistics

Coefficients[a]								
Model		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	6.487	2.235		2.902	.005		
	Risk-free of return	.270	.259	-.056	-.391	.697	.761	1.433
	Project's volatility	-.106	.270	-.092	-.599	.551	.676	1.479
	Expected return on the market	-.520	.570	.019	.127	.899	.715	1.399

a. Dependent variable: Expected return used by MDBs

Table 69

2012 Regression Coefficients and Collinearity Statistics

Coefficients[a]								
Model		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	2.265	3.499		2.902	.005		
	Risk-free of return	.270	.225	.157	-.391	.697	.920	1.087
	Project's volatility	-.106	.270	-.092	-.599	.551	.988	1.479
	Expected return on the market	-.520	.570	-.037	-.281	.899	.912	1.097

a. Dependent variable: Expected return used by MDBs

Table 70

2013 Regression Coefficients and Collinearity Statistics

Model		Unstandardized coefficients		Standardized coefficients	*t*	*Sig.*	Collinearity statistics	
		B	*Std. Error*	Beta			Tolerance	*VIF*
1	(Constant)	3.630	3.662		.991	.325		
	Risk-free of return	.190	.227	.111	.838	.405	.912	1.096
	Project's volatility	-.033	.267	-.018	-.124	.901	.784	1.276
	Expected return on the market	-.024	.223	-.016	-.109	.914	.759	1.318

Coefficients[a]

a. Dependent variable: Expected return used by MDBs

Table 71

1995 Model Summary

Model Summary[b]

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.029[a]	.001	-.015	1.84532	1.721

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 72

1996 Model Summary

Model Summary[b]

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.055[a]	.003	-.013	1.84336	1.711

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 73

1997 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.119[a]	.014	-.001	1.83303	1.694

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 74

1998 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.049[a]	.002	-.013	1.83391	1.893

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 75

1999 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.119[a]	.014	-.001	1.83300	1.794

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 76

2000 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.049[a]	.002	-.013	1.84391	1.797

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 77

2001 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.145[a]	.021	.006	1.82670	1.724

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 78

2002 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.229[a]	.052	.037	1.79719	1.772

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 79

2003 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.071[a]	.005	-.010	1.84140	1.821

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 80

2004 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.077[a]	.006	-.010	1.84068	1.833

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 81

2005 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.012[a]	.000	-.015	1.84599	1.821

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 82

2006 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.080[a]	.006	-.009	1.84023	1.842

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 83

2007 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.087[a]	.008	-.008	1.83909	1.811

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 84

2008 Model Summary

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.086[a]	.007	-.008	1.83922	1.832

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 85

2009 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.068[a]	.005	-.011	1.84180	1.854

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 86

2010 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.119[a]	.014	-.001	1.83300	1.861

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 87

2011 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.004[a]	.000	-.016	1.84611	1.832

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 88

2012 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.131[a]	.017	-.002	1.83017	1.733

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Table 89

2013 Model Summary

Model Summary[b]					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
1	.250[a]	.063	.048	1.78738	1.823

a. Predictors: (Constant), Risk-free of return, Project's volatility (beta), Expected return on the market

b. Dependent variable: Expected return used by MDBs

Applications to Professional Practice

Capital investments must provide returns sufficient to compensate investors for accepting risks associated with the investment. The findings of the research may be of practical significance to MDB leaders for two reasons. I used a study design common to decision makers as they assess investment risk. I also highlighted the need to measure the return necessary to compensate for the riskiness of investments.

Financial decision-makers should consider risks when comparing investment options. The results of this study highlight the importance of investment risk assessment.

The research landscape related to investment or project risk is broad. By focusing on the estimate of volatility and simulation analysis allows researchers to develop a probability distribution of possible outcomes influencing investment performance (Badaoui & Fernández, 2013). The results of this study add to the ongoing debate on the benefits of active expected return on the market related to MDBs investments management versus passive management. The results of this study may provide key information to assist MDBs leaders to determine the effects of changes in the cost of capital on the probability of a project. The decision rule for the expected return is to invest in a project if it provides a return greater than the cost of capital (Karpavičius, 2014).

Implications for Social Change

Society may benefit from the results of this study because the application of this study may help MDBs focus their investments on areas with the greatest impact on growth, modernization, and development in CA. The implications of the study results could serve three potential purposes: The results of this study might help MDBs leaders (a) reach conclusions about the profitability of a firm and business risk in CA; (b) identify, in the early stage of the project, a systematic calculation of risk-adjusted present value to determine whether to accept or reject a project in the context of MDBs; and (c) promote business development and social welfare in CA through private investments. MDBs leaders might find the study results useful when proposing policies to invest in CA countries. MDBs leaders will become more comfortable applying a systematic calculation of risk-adjusted investment to determine whether to accept or reject a project.

Recommendations for Action

Financial development and economic growth is a multidimensional process involving social structures, popular attitudes, and national institutions, as well as the sound business decisions (Valickova, Havranek, & Horvath, 2014). I found no statistically significant relationship between the (r_p) adjusted by (R_f, β_p, R_m) with the (r_p) used by MDBs in CA. In addition, I found the expected return (r_p) adjusted by (R_f, β_p, R_m) was above in comparison with the (r_p) used by MDBs in CA. Consequently, the overall results indicated the expected return used by MDBs underperform the market. The implication from my study is MDBs leaders may not be appropriately allocating resources.

The results of this study are vital to MDBs leaders, scholars, practitioners, and financial analysts. MDBs leaders may use the results of this study to align the expected return with the expect return on the market in order to reduce the risk on investments. Practitioners and financial analysts may use the results of this study to determine which investments will provide the highest profit at least risk in the context of MDBs investments. Scholars may use the results of this study as a foundation to research the MDBs expected return performance, and the optimal use of available MDBs funds means exploring different options and selecting those providing the greatest overall value. I intend to publish the results of this study in the ProQuest/UMI dissertation database, pursue publication in academic journals, and discuss the results in conferences.

Recommendations for Further Research

In this study, I assessed the relationship between the risk-free rate, volatility, market return, and expected return used by MDBs for CA loans for the period 1995 to 2013. With regard to expected return, the focus was the expected return used by MDBs loans in CA and market return. Future researchers may want to extend my research. Specific recommendations for further study relate to improved practice in business include focusing on sensitivity analysis measures, NPV, IRR, and other indicators of profitability. Future researchers may want to consider other simulation techniques. Organizations face a scarcity of resources and need to make the most effective use of available resources. In this research, I considered the possibility of obtaining more information before making a decision. When this possibility exists, the decision maker needs to compare the costs and benefits of additional information in order to decide if obtaining it is worthwhile.

Reflections

My primary goal of this study was to examine the relationship between the risk-free rate, volatility, market return, and expected return used by MDBs for CA loans. There were a few surprises along the way, especially during the data collection, analyzing. However, once figuring out how the historical rate of return and risk measures, it became a much easier process. It was difficult to determine how investors select investments with returns above a required expected return rate. The nature of this study included identifying the range of possible returns investments and assigning each possible return, and measure of systematic risk (beta). Once I understood the relevant measure of risk related to MDBs, I was able to use this to determine an appropriate expected return of return on a risky investment.

Summary and Study Conclusions

The primary purpose of the quantitative correlational study was to examine the expected return used by MDBs and the expected market return on the market. Specifically, the goal was to determine if a statistically significant relationship existed between risk-free rates of return (R_f), project's volatility (β_p) and the expected return on the market (R_m) in comparison with the expected return (r_p) used by MDBs for CA loans. I examined if the expected return used by MDBs adjusted by risk-free rate of return, project's volatility, and the expected return on the market was above in comparison with the expected return used by MDBs for CA loans. I examined the relationship using a multiple regression model and a sample of 66 total actively MDBs loans for CA.

The findings revealed no significant relationships present; all p-values exceeded alpha of .05, and the expected return used by MDBs adjusted by risk-free rate of return, project's volatility, and expected return on the market was above in comparison with the expected return used by MDBs for CA loans. As a result, I accepted the null hypotheses $H_0 2$, and I accepted the alternative hypothesis $H_1 1$. My findings of no relationship may indicate the expected return on the market was mostly efficient for the period 1995 to 2013 and was above of the expected return used by MDBs for CA loans for the period 1995 to 2013. Thus, the risk-free rate of return (R_f), project's volatility (β_p), and the expected return on the market (R_m) were not good predictors of the expected return (r_p)

used by MDBs. This may indicate MDBs are issuing loans without considering the risk associated with these loans.

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