

2017

Relationship between Mutual Fund Type, Portfolio Turnover, Longevity, Management Turnover, and Performance

Medhanie G. Mekonnen
Walden University

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Walden University

College of Management and Technology

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Medhanie Mekonnen

has been found to be complete and satisfactory in all respects,
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Review Committee

Dr. Roger Mayer, Committee Chairperson, Doctor of Business Administration Faculty

Dr. Cheryl Lentz, Committee Member, Doctor of Business Administration Faculty

Dr. Reginald Taylor, University Reviewer, Doctor of Business Administration Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
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Abstract

Relationship between Mutual Fund Type, Portfolio Turnover, Longevity, Management
Turnover, and Performance

by

Medhanie Mekonnen

MS, DeVry University, 2007

BS, University of Asmara, 1996

Doctoral Study Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Business Administration

Walden University

August 2017

Abstract

Mutual fund portfolio managers do not always meet risk-adjusted performance expectations, resulting in loss of capital reserves. Out of 3,612 U.S. based open-ended mutual funds, the risk-adjusted performance of 2,890 (80%) failed to meet or beat the S&P 500 (index fund) performance between the year 2006 to 2016. Grounded in Markowitz's modern portfolio theory, the purpose of this correlational study was to examine the relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance. Archival data were collected from 88 U.S. based equity mutual funds companies. The results of the multiple regression analysis indicated the model as a whole was able to significantly predict annual fund risk-adjusted performance for the 5-year period ending 2016, $F(4, 83) = 3.581, p = .043, R^2 = .147$. In the final model, mutual fund class type and portfolio turnover were statistically significant with mutual fund class type ($\beta = .249, t = 2.302, p = .024$) accounting for a higher contribution to the model than portfolio turnover ($\beta = .238, t = 2.312, p = .023$). Mutual fund longevity and management turnover did not explain any significant variance in annual fund risk-adjusted performance. Society can benefit from the results of this doctoral study because investors and mutual fund managers could better predict the return based on the information from the study, which may lead to higher families' confidence in the positive contribution of the mutual fund in their portfolio.

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Dedication

I would like to dedicate this doctoral study to my beautiful wife, Selam Tesfai, for her love, support, encouragement, prayer, and patience. Also, my kids, Nahum Mekonnen, Mattias Mekonnen, and Micah Mekonnen for their prayers and inspiration. I want you to remember that there is no challenge that you will not be able to overcome. Your love as my family have kept me warm through the cold nights that pushed me closer to the finish line. I also like to dedicate this study to my beloved older sister, Weini G. Mekonnen, who lost her life after liver surgery.

Acknowledgments

First, I would like to give thanks to God for his gift of strength and blessings to complete this study. I would like to thank my father Ghirmay Mekonnen, whose dedication, support, and investment were key to my success, and my mother Abrhet Andemicael, whose prayer, love and support were vital to my persistence. Thank you to my beautiful wife, Selam Tesfai, for her love, support, prayer, encouragement, and patience. Also, I thank my kids, Nahum Mekonnen, Mattias Mekonnen, and Micah Mekonnen for their prayers and inspiration. The smile and love of my little kids have kept me warm through the cold days and nights that pushed me closer to the finish line. Also, I thank all my brothers, family members and friends for their courage and support through the process.

Special thanks to my committee in giving their time and energy to make this doctoral study finally complete. Thank you to my chair, Dr. Roger Mayer and his wife, Dr. Wen-Wen Chien for their guidance, unwinding feedback and support throughout the process of this doctoral study. Thank you to my second committee member, Dr. Cheryl Lentz for her suggestions and feedback. Also, thank you to Dr. Reggie Tylor, for his valuable feedback and suggestions to make this study complete. Finally, I would like to thank the program director, Dr. Freda Turner for her morale and support during residencies.

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Section 1: Foundation of the Study

The goal of a fund manager is to maximize fund performance (Brooks, 2016). Mutual fund portfolio managers' role includes managing the portfolio, selling and marketing funds, selecting and retiring funds, and overseeing compliance to regulations (Kostovetsky & Warner, 2015). Fund managers are the ultimate decision makers in maximizing portfolios return (Brooks, 2016; Franco, 2014; Kostovetsky & Warner, 2015). Fund managers struggled to beat performance metrics, such as the S&P 500 (Franco, 2014; Junarsin, 2013; Kostovetsky & Warner, 2015). Hence, the concern of mutual fund managers is to improve their ranking, and consequently attain pecuniary rewards.

Background of the Problem

Through October 2008, managers of large publicly traded financial institutions reported a loss of \$700 billion (Amuedo-Dorantes & Pozo, 2015) and the estimated loss to investors during the 2008-2009 recession was over \$2 trillion (Brooks, 2016; Franco, 2014). Consequently, fund managers lost capital because of clients' withdrawal and evaporation of fund value from declining stock prices (Munoz, Vargas, & Marco, 2014). However, during this same period, some fund managers survived the financial crisis and attracted substantial additional capital (Franco, 2014). Thus, the decisions of mutual fund managers affect the success of a fund (Munoz et al., 2014). Mutual fund managers, however, do not always meet performance expectations, resulting in loss of capital reserves and potentially the loss of their jobs (Munoz et al., 2014).

In agreement with Section 15(c) of the Investment Company Act of 1940, fund-managing companies' need to report core elements of performance and expenses related to advisor fees, fund expenses, portfolio turnover, and investment portfolio performance (Kostovetsky & Warner, 2015). Investors use this information to make investment decisions relate to where to invest. The basis for mutual fund managers' performance includes asset growth and portfolio returns. Lower performance might lead to compensation reduction or separation (Munoz et al., 2014). This is critical for highly managed funds (i.e. Class A) that requires upfront load that reduces the investment return (Munoz et al., 2014). Highly managed funds generally have a high portfolio turnover with frequent buy and sell decisions; fund manager decisions are not always successful (Beyhaghi & Hawley, 2013). During the period between 1995 and 2015, 13,627 internal fund managers and subadvisors departed from their position as financial advisors because of underperformance (U.S. Securities and Exchange Commission, 2015). Thus, the purpose of this doctoral quantitative correlation study is to examine the relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016.

Problem Statement

Mutual fund portfolio managers do not always meet risk-adjusted performance expectations, resulting in loss of capital reserves (Munoz et al., 2014). Out of 3,612 U.S. based open-ended mutual funds, the risk-adjusted performance of 2,890 (80%) failed to meet or beat the S&P 500 (index fund) performance between the year 2006 to 2016 (Ying-Fen & Hai-Ching, 2017). The general business problem is a low risk-adjusted

performance of mutual fund portfolio may cause investors to withdraw their financial asset under management. The specific business problem is that some portfolio managers do not know the relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016.

Purpose Statement

The purpose of this doctoral quantitative correlation study was to examine the relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016. The independent variables were mutual fund type, portfolio turnover, fund longevity, and management turnover for the 5-year period ending 2016. The dependent variable was the annual fund risk-adjusted performance for the 5-year period ending 2016. The population for the study comprised archival data from U.S. based equity mutual funds companies. Mutual fund managers may benefit from the results of this study by identifying ways to run their funds under their management with success. Investors may benefit from the result of this study as they seek a portfolio that fits their risk criteria.

Nature of the Study

There are three primary approaches to conducting research (a) quantitative, (b) qualitative, and (c) mixed methods (McCusker & Gunavdin, 2015). Quantitative researchers perform statistical analysis of relationships between variables (Lach, 2014). Therefore, the quantitative method is appropriate for this study because I examined the

relationship between a set of predictor variables and a dependent variable. Researchers use qualitative methodology to answer the questions *how*, *why*, or *what* (McCusker & Gunavdin, 2015). Therefore, the qualitative methodology is not appropriate because I did not analyze textual data from interviews, observations, or document reviews. Finally, researchers use a mixed method approach when their analysis includes both numerical and textual data (Symonds & Gorard, 2010). Therefore, the mixed methodology was not appropriate, because the purpose of this doctoral study was to explore textual data from interviews, observations, or document reviews.

The four primary quantitative research designs are (a) correlational, (b) descriptive, (c) experimental and (d) quasi-experimental (Humphreys & Jacobs, 2015). Researchers use the correlation design, as used for this study, to explore the relationship between variables without intervention in the processes of the research (Polit & Hungler, 2013). Therefore, the correlation design meets the needs of this study, as the goal was to examine the relationship between a set of predictor variables and a dependent variable. Researchers use a descriptive design to depict the characteristics of groups, individuals, or situations and the frequency in which certain phenomena occur (Polit & Hungler, 2013). Researchers use an experimental design to measure the influence of an independent variable on another variable through manipulation (Humphreys & Jacobs, 2015). Using an experimental design, researchers manipulate an independent variable by assigning subjects to different conditions (Polit & Hungler, 2013). Similarly, researchers use quasi-experimental design to manipulate an independent variable, however, without assignment (Campbell & Stanley, 2015). I did not manipulate an independent variable by

assigning subjects to different conditions and thus, rejected the option of an experimental design for this doctoral research.

Research Question

What is the relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016?

Hypotheses

H_0 : There is no significant statistical relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016.

H_a : There is a significant statistical relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016.

Theoretical Framework

The modern portfolio theory (MPT) is an appropriate framework for this study because fund managers base their asset diversification decisions on the theory (Franco, 2014). Markowitz (1952) was the first to develop the theory of MPT. The concept of MPT, however, has significantly changed from the original idea in 1952, in that the present investment professionals and investors are different from those of 60 years ago, (Franco, 2014). Baptiste (2012) implemented the MPT in searching the secondary data from 2005 to 2010 to compute the mean average return, sharp ratio, and average risk of the Dow Jones Industrial Average (DJIA) and mutual fund holdings.

Modern portfolio theorists use the concept of stock diversification to manage the market related risk of mutual fund portfolios under their management (Franco, 2014). Also, Meric, Gishlick, Taga, and Meric (2011) identified a better diversification benefit by investing domestically than investing globally for the domestic funds are more correlated. The foundation of MPT is the expected return and variances of assets in which mutual fund managers construct a portfolio along the efficient frontier based on their customers' risk preference. For a portfolio investment to achieve maximum efficiency, investors need to select negatively correlated financial assets (Meric et al., 2011). Assuming the acceptable philosophy of risk-return tradeoff in finance, an investor with a focus on return would invest in highly risk assets to gain higher return. Nyberg (2013) identified the positive relationship between the investor's perception of return and the level of expected risk to attain the return. The concept of MPT applies to this study because the goal is to examine variables that may relate to risk-adjusted performance.

Operational Definitions

Equity funds: Equity funds or equity mutual funds is a portfolio of stocks that can be invested in different sectors, industries, or countries (Lee, 2013).

Fund longevity: Longevity of the fund or fund longevity refers to the years between the mutual fund's first appearance and last appearance in the market financial market (Beyhaghi & Hawley, 2013).

Management turnover: Management turnover on a mutual fund refers to how frequent the management team changes over a specific period (Edelen, Evans, & Kadlec, 2013).

Mutual fund class type: A mutual fund is a professionally managed portfolio of assets that include money market funds, stocks, commodities, and bonds (Karoui & Meier, 2015). Mutual fund class type refers to the different fees that are associated with the class type of a fund (Garyn-Tal, 2015). The predominant mutual fund class types in the market are A-shares, and C-shares (Franco, 2014).

Mutual fund fees: Mutual fund fees or mutual fund expenses are fees related to mutual fund management expenses that include 12b-1 fees, front-end load, back-end load, and expense ratio (Vidal-García, 2013).

Mutual fund Performance: Mutual fund performance is a measure of return or performance of the fund, which is expressed in terms of the sum of net asset value (NAV), distribution of capital gain, and the dividends within a given period (Baghdadabad & Houshyar, 2014).

Mutual fund portfolio manager: A mutual fund portfolio manager or mutual fund manager is an individual or a management group that actively involves in managing the portfolio; selling and marketing funds, selecting and retiring funds, as well as overseeing regulations related to compliance, and fund transfer agents (Kostovetsky & Warner, 2015).

Portfolio turnover: The term portfolio turnover refers to the fund managers' assets change (buy and sell) frequencies to rebalance the holdings of a portfolio (Beyhaghi & Hawley, 2013).

Risk-adjusted performance: Risk-adjusted performance or risk-adjusted rate of return is the ratio of excess return of a portfolio divided by the standard deviation (Tan,

2015). Researchers use either Sharpe ratio or Treynor ratio to identify funds' annual risk-adjusted rate of return (Ayinde, Lukman, & Arowolo, 2015).

Weighted average market capitalization: Weighted average market capitalization or market capitalization approach refers to a normalized equity index market based upon the market capitalization of each stock in the index (Bolognesi, Torluccio, & Zuccheri, 2013).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are statements that are out of a researcher's control but assumed and accepted to be true (Kirkwood & Price, 2013). According to Kirkwood and Price (2013), assumptions are so basic and vital that without them the research is invalid. The first assumption in this doctoral study was that the sample represents the population. The second assumption was that fund managers' performance has an impact on the risk-adjusted return of the funds. The third assumption of this doctoral study is that the third party that rated the individual mutual funds included all the necessary elements to before assigning their value for the quality.

Limitations

Limitations are concepts or statements that are potential weaknesses of a study and are out of the researcher's control (Griffin, 2015). According to Griffin (2015), personal experience and biases can be one of examples that influence quality of secondary data. The first limitation in this doctoral study relates to the quality of the secondary data. A researcher generally does not have the ability to measure the quality of

the data set. The second limitation is that past activity may not reflect future events. A relationship does not prove causality (Arrawaita, Misra, & Dawar, 2015).

Delimitations

Delimitations are those characteristics that limit the scope and defines the boundaries of a study (Munoz et al., 2014). Delimitations, unlike limitations and assumptions, are under the control of the researcher. The delimitation of this doctoral study includes the choice of the problem, theoretical perspective, the variable of interest and the population. The second delimitation is that I did only include U.S. based mutual funds, and thus, the conclusion might infer to only U.S. based funds.

Significance of the Study

Mutual fund managers and individual investors stand to benefit from this study. First, mutual fund managers may identify new ways to improve their business performance from the result of this doctoral study. Second, individual investors and retirees may benefit from the results of this doctoral study as they may have a better understanding of their invested fund(s). Further, investors may benefit from the findings of this doctoral study as the finding might add value to knowledge of portfolio managing business.

Contribution to Business Practice

Mutual fund managers may benefit from the results of this study by identifying ways to run their fund successfully under their asset management. If investors perceive that mutual fund managers are not managing resources correctly, these investors seek alternative investments (Sun & Wang, 2013). Mutual fund managers may benefit from

the result of this doctoral study by retaining and growing their funds under management by ensuring customer expectations.

Implications for Social Change

The implications for positive social change include the potential to benefit individual investors and families by improving customer satisfaction and investment returns. Society may benefit from the results of this doctoral study because mutual fund managers may change their strategies, which may lead to higher societal trust in financial institutions. As Baby Boomers start to retire and the availability of online investing is accessible to individual investors, educating investors about risk may help in decision making. Mutual funds are the primary source of investing for retirement (Franco, 2014). Thus, a better understanding of risk-adjusted mutual fund portfolio performance may add to the stability of post-retirement income for individuals.

A Review of the Professional and Academic Literature

In conducting the literature review, I used the Google Scholar search engine, Dissertations, and seminal books. The online databases used in this study include ABI/INFORM, Accounting and Tax, Business Source Complete, Emerald Management, ProQuest, and SAGE premier. Searches included relevant key words like *equity funds*, *fund longevity*, *fund turnover*, *modern portfolio theory*, *mutual funds*, *mutual fund portfolio management*, *portfolio turnover*, and *risk-adjusted fund performance*.

In this doctoral study, I cited separate 154 sources (88% within 5 years of 2017), of which 105 are the literature review. Out of the 105 cited references in the literature review, 90 (86%) of the references were within the last 5 years of my expected

graduation in 2017. Of these sources, 96% of the sources are peer-reviewed. The following Table 1 shows the breakdown of the sources.

Table 1
The Source of the Literature Review Used

Sources of Literature	Count	Percentage
Peer-reviewed journals within last 5 years of 2017	83	79%
Nonpeer-reviewed journals within 5 years	0	0%
Peer-reviewed journals more than 5 years of 2017	12	11%
Nonpeer-reviewed journals more than 5 years of 2017	0	0%
Dissertations/ Doctoral studies within 5 years of 2017	3	3%
Dissertations/ Doctoral studies more than 5 years of 2017	1	1%
Books published within the last 5 years of 2017	4	4%
Books published more than 5 years of 2017	2	2%
Other references	0	0%
Total	105	100%

Note. Count = numerical count; Percentage = percentage out of the total count 105.

The writing of a literature review has the purpose of providing a framework for related new findings to the previous findings (Griffin, 2015). Thus, establishing the state of the previous research via literature review is essential before setting the advances in the new research. There is a substantial amount of literature available in the field of mutual funds that show the changes in their level of risk to return over a period (Griffin, 2015). Most of the literature, however, is not as narrowly in line with the time and the mutual funds investigated in the review. For example, Huang, Sialm, and Zhang (2011)

highlighted the then existing ethical issues and the regulatory landscape of the United States financial industry, by stating that the design of mutual funds mostly creates a substantial change in their level of risk exposure. Baghdadabad and Houshyar (2014) assessed the U.S. mutual funds relative performance using nonparametric methods like data envelopment analysis (DEA). Baghdadabad and Houshyar used the DEA-based Tronqvist-Productivity-Index to determine particularly mutual funds productivity. Further, the significant losses in the mutual fund's productivity between 2010 and 2012 attracted the attention of U.S. financial market regulators, and policy makers (Baghdadabad & Houshyar, 2014).

In identifying the market risk associated with funds, Bogle (2016) explained the development of indexed mutual funds by Vanguard Group in September 1975 based on MPT. The indexed mutual fund obtained acceptance in the financial market and obtained its name from the First Index Investment Fund and later the Vanguard 500 Index Fund (Bogle, 2016). Consequently, several other indexed mutual funds appeared in the global financial market 30 years later (Bogle, 2016). Bogle further stated that the fund managing institutions took 20 years to recognize and accept the index funds. Bogle also recognized Vanguard's leadership in the financial market in the construction of indexed mutual fund until present.

Modern Portfolio Theory

The MPT is the theoretical framework that this doctoral study founded. Markowitz (1952) was the first to publish related to the development of the theory of MPT. The concept of MTP, however, changed significantly from the original idea of

1952 in that the present investment professionals and investors evolved to use new theories in line to MPT (Franco, 2014). Baptiste (2012) used secondary data from 2005 to 2010 to compute the mean average return, sharp ratio, and average risk of the DJIA and mutual fund holdings.

The MPT refers to the concept of diversification of stocks to minimize the risk of a portfolio in the market (Junarsin, 2013). Junarsin (2013) identified that there is better diversification benefit by investing domestically than investing globally for the domestic funds are more correlated. The foundation of MPT is the expected return and variances of assets in which mutual fund managers construct a portfolio along the efficient frontier based on their customers' risk preference (Berk & DeMazo, 2013). Berk and DeMarzo (2013) identified that investors could minimize the risk of their portfolio by their funds into diversified asset classes. Thus, for a portfolio investment to achieve maximum efficiency, fund managers need to select a negatively correlated financial asset (Nyberg, 2013). The following Figure 1 shows graphic representation of MPT.

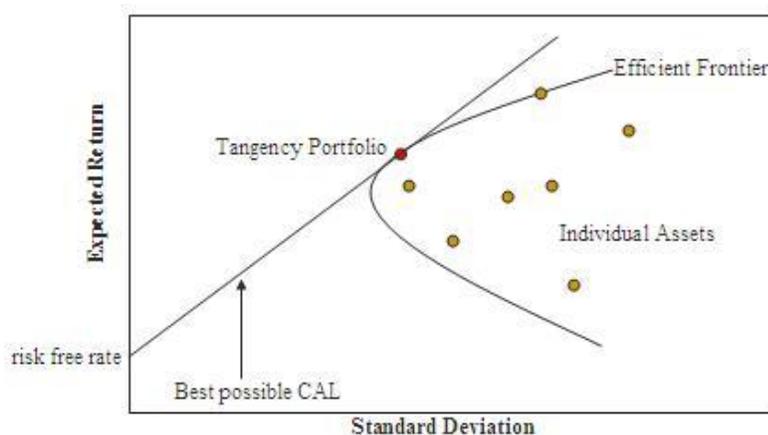


Figure 1. Graphical representation of modern portfolio theory.

Assuming the acceptable risk-return tradeoff in finance, an investor with a focus on return would invest in highly risk assets to gain higher performance and vice-versa (Nyberg, 2013). Nyberg (2013) identified the positive relationship between the investor's perception of return and the level of expected risk to attain the return. The concept of MPT would apply towards investing in clients' financial assets in the market (Berk & DeMazo, 2013). The mutual fund industry performance operates through the transition risks lever, but without emphasizing on the long-term test of the market (Lee, 2013). Thus, Lee (2013) recommended for the mutual fund industry to strengthen risk management strategy and pursue performance sustainability.

As to the concept of efficient frontier, which derived from the concept of MPT and an acceptable philosophy of risk-return tradeoff in finance, an investor with a focus on return would invest in highly risk assets to gain higher return and vice-versa (Franco, 2014). Franco (2014) added that each financial asset's average return moves in opposite directions if there are a positive and negative change in the stock market. A well-constructed portfolio, which is constructed in the line of efficient frontier, would normally be less sensitive to the economic changes in the market and delivers the highest possible return (Berk & DeMazo, 2013). Hence, investors can maximize their return by moving along the frontier based on their risk tolerance to attain the corresponding return (Omisore, Yusuf, & Christopher, 2011).

Support of the modern portfolio theory. The major strength of MPT is its broad application related to choosing the best option among alternatives, especially for the assessment of uncertainty and yield potential (Omisore, Yusuf, & Christopher, 2011).

The use of MPT proved to be efficient in the selection of seed sources to regrow trees (Crowe & Parker, 2008). In addition, Marinoni et al. (2011) applied the MPT to identify the optimal recipe of intervention measures, which delivered the highest return possible despite budgetary constraints. Further, Ando and Malloy (2012) identified a reduction in ecosystem uncertainty and generated a 15% higher return when applying MPT to evaluate alternatives. Thus, Ando and Malloy proposed a decomposition of fund return standard deviation using holdings-based measures in the second half of the year to distinguish between risk changes that were because managers' trades and those that resulted from holding the portfolio.

Similarly, Baptiste and Schaefer (2014) used MPT in a quantitative methodology with a causal-comparative research design, to determine whether mutual fund portfolios provide shareholders with superior expected returns for an acceptable level of risk. Whereas, Kopsch, Song, and Wilhelmsson (2015) relied on Swedish quarterly data on mutual fund flows over the period 1998-2013. Baptiste and Schaefer (2014) identified that the expected mean return of mutual funds outperformed the Dow Jones Industrial Average (DJIA), confirming the outcomes of past research. Hence, Omisore et al. (2011) suggested that MPT strategies are still crucial for shareholders and practitioners to improve their investment decision. The major strength of MPT is its broad application related to choosing the best option among alternatives, especially for the assessment of uncertainty and yield potential (Omisore et al., 2011). The use of MPT proved to be efficient in the selection of seed sources to regrow trees (Crowe & Parker, 2008). Also, Omisore et al. (2011) applied the MPT to identify the optimal recipe of intervention

measures, which delivered the highest return possible despite budgetary constraints. Further, Ando and Malloy (2012) identified a reduction in ecosystem uncertainty and generated a 15% higher return when applying MPT to evaluate alternatives. Ando and Malloy proposed a decomposition of fund return standard deviation using holdings-based measures in the second half of the year to distinguish between risk changes that were because of managers' trades and those that resulted from holding the portfolio. Hence, managers use the concept of MPT to efficiently allocate not only funds but also to resolve budgetary constraints.

There is enough literature related to MPT, that researchers examined and explored through the relationship between diversification and mutual fund return in the market. Bolognesi et al. (2013) compared two major equity index construction methodologies, which were the capitalization weighted and the equally weighted approaches. Lee (2013) focused on the Dow Jones Industrial Average (DJIA) and the Euro Stoxx index for 10 years, which started from January 2002 up to December 2011 and compared with cap-weighted portfolio indexes. Bolognesi et al. used four reweighing frequencies (monthly, quarterly, semiannually, and yearly) to identify the ablest to maximize benefits of constraint strategy implicit in the equally weighted approach. The result demonstrated the excess returns by their size difference, which usually explains the difference in performance between the two strategies (Baptiste & Schaefer, 2014). The similar result confirmed using a Fama-French three-factor regression analysis and portfolio approach based on the market capitalization of the index constituents (Bolognesi et al., 2013).

Similarly, Baptiste and Schaefer (2014) identified that the expected mean return of mutual funds outperformed the Dow Jones Industrial Average (DJIA). Hence, Bolognesi et al. (2013) suggested that shareholders and practitioners might improve their investment decisions by using MPT strategies. Kopsch et al. (2015) identified a trend that supports for the information-response hypothesis. Additionally, Kopsch et al. identified new financial variables that have predictive power in determining mutual fund flows, namely; market fear, exchange rate, households' expectation regarding inflation as well as outflows from mutual bond funds.

Furthermore, Lee (2013) measured the mutual fund industry risk management and performance sustainability. Lee used quantile regression model to observe the rank correlation between bond fund performance and asset volatility. Whereas, Kopsch et al. (2015) used a vector autoregressive model to test for Granger causality to determine the order of events. The model included management fee, Sharpe index, and showed that the fund performance between volatility as a significant negative relationship, implied extreme values that had generated risk coefficient and fund performance change relations (Lee, 2013). Kopsch et al. used a twofold model; through the structural models framed the relationship between mutual fund flows and financial macro variables. The absolute value of the display and risk coefficient fund had changed the relationship resulting in lower fund performance under review (Lee, 2013).

Historical development of MPT. Markowitz (1952) was the first to publish a paper related to the development of MPT. In 1952, Markowitz identified the technique related to portfolio selection and validated the efficient frontier. The concept of MPT,

however, evolved from the original idea of 1952 in that the present investment professionals and investors have evolved to use new theories in line to MPT (Franco, 2014). In 1958, the theory of MPT included the risk-free assets in line with risky assets to construct a return higher than the efficient frontier (Fama & French, 1993). According to Fama and French, risk averse investors use MPT to optimize their portfolio return on a particularly given market risk.

The MPT refers to the concept of diversification of stocks to minimize the risk of a portfolio in the market (Junarsin, 2013). Omisore et al. (2011) identified a better diversification benefit by investing domestically than investing globally for the domestic funds are more correlated. The foundation of MPT is the expected return and variances of assets in which mutual fund managers construct a portfolio along the efficient frontier based on their customers' risk preference (Berk & DeMazo, 2013). Berk and DeMarzo identified that investors could minimize the risk of their portfolio by their funds into diversified asset classes. The portfolio investment to achieve maximum efficiency, fund managers need to select a negatively correlated financial asset (Omisore et al., 2011). In this doctoral study, I used the MPT theory as the framework for my interpretation of results.

In constructing an optimal portfolio, the MPT has four steps: (a) valuation of security, (b) allocation of asset, (c) optimization of portfolio, and (d) measurement of performance (Deyshappriya, 2014). The valuation of asset refers to the identification of assets based on their risk and expected return (Fama, 1970). Allocation of asset is the distribution of assets of different classes in a portfolio to optimize return (Berk &

DeMazo, 2013). Asset classification refers to industry or market related classification (Michelfelder, 2015).

Two mathematical equations formulated MPT: the equation of expected return on portfolio and the equation of portfolio variance (Fama & French, 1993). Fama and French (1993) also stated that the standard deviation (σ_p) depicts the portfolio return volatility. The different equations related to MPT include; the expected return on portfolio, the portfolio variance, and the portfolio return volatility depicted as follows:

The expected return on portfolio;

$$E(R_p) = w_A E(R_A) + w_B E(R_B)$$

Where: $E(R_p)$ = the expected return on the portfolio.

w_A = the weighting of component of an asset A in a portfolio.

$E(R_A)$ = the expected return on an asset A.

w_B = the weighting of component of an asset B in a portfolio.

$E(R_B)$ = the expected return on an asset B.

The portfolio variance;

$$\sigma_p^2 = w_A^2 \sigma_A^2 + w_B^2 \sigma_B^2 + 2w_A w_B \sigma_A \sigma_B \rho_{AB}$$

Where: σ_p^2 = the variance of the return on portfolio.

σ_A^2 = the variance of asset A as a weighting component of a portfolio.

σ_B^2 = the variance of asset B as a weighting component of a portfolio.

ρ_{AB} = the correlation coefficient between the returns on asset A and B.

Hence the portfolio return volatility;

$$\sigma_p = \sqrt{\sigma_p^2}$$

Where: σ_p = the standard deviation on portfolio.

There is a substantial amount of literature available in the field of mutual funds that show the changes in their level of risk to return over a period (Griffin, 2015). Nanigian (2014) showed how investing in low-beta stocks would improve the mean-variance efficiency of an investor's portfolio. Whereas, Griffin (2015) identified the wealth of information in mutual fund related research that covers a broad spectrum. Marekwica and Steininger (2014) identified that the industry of mutual fund investment differs among different regions depending on governance, motives for investing, tax implications, and the variables that influence continual performance. Fund managers and investors need to identify, added Marekwica and Steininger (2014), the various components that affect the performance of mutual funds to maximize return.

To analyze the tradeoff, Marekwica and Steininger (2014) looked at investors that invest in equity mutual funds to maximize utility. As identified, the mutual fund managers offer investors an option to invest in mutual funds that allow access to a highly-diversified portfolio with fewer funds and in turn charge fees for the service. Nanigian (2014), contrary to CAMP's prediction, showed how investing in low-beta stocks would improve the mean-variance efficiency of an investor's portfolio. Whereas, Griffin (2015) the direct investment in stocks offer investors with the option to select stocks of their choice and impose higher transaction cost in setting or rebalancing their diversified portfolio. The result of the study showed that the fee that made individual investors indifferent to invest either in direct stocks or mutual funds varied on the amount invested,

the level of investors risk aversion, transaction costs, the correlation between assets and the length of the investment horizon (Marekwica & Steininger, 2014).

Nanigian (2014) showed, contrary to CAMP's prediction, how investing in low-beta stocks would improve the mean-variance efficiency of an investor's portfolio.

Marekwica and Steininger (2014) referred to the investors that invest in equity mutual funds to maximize utility. The empirical research, through the forming of portfolios of mutual funds based on the beta, examined if investors can capitalize on the puzzle.

Nanigian (2014) identified that a portfolio of funds in the top quintile of beta can improve their alpha by a statistically significant 2.9% to 4.9% a year, depend on the asset pricing model specification, by adding a portfolio of funds in the bottom quintile. Despite the result of the research, further research is required to solidify the result of the study.

Furthermore, Sakr, Ragheb, Ragab, and Abdou, (2014) identified mutual fund performance related reports that show the bear market dominated market since 2009.

According to Sakr et al. (2014), large-capitalization A-share mutual funds had outperformed the mid and small capitalization mutual funds in the year 2015. Hence, because the good performance of the large-capitalization fund, more and more mutual fund managers would allocate their clients' capital into the large-capitalization mutual funds family (Sakr et al., 2014).

Current research on the topic. In an interview of Markowitz, the creator of the MPT defended the validity of his theory in the existing contemporary financial market (TripathiRao, Mandia, & Anand, 2012). Markowitz contradicted to the theory's inapplicability in today's world of finance (TripathiRao et al., 2012). Markowitz believed

the MPT is valid explanation for the loss in the 2008 market crash. The high return-seeking investors lost more than those investors, who seek less return (TripathiRao et al.). Adding support to this belief, TripathiRao et al. (2012) concluded that the MPT was valid for their investigation of mean-variance optimization using the theory of MPT. Karoui and Meier (2015) based MPT as an established fact that about the negative correlation of stock returns and the subsequent return of the standard deviation.

One of the latest scholarly literature that implemented the MPT for his research was by Franco (2014). Karoui and Meier (2015) based MPT as an established fact that about the negative correlation of stock returns and the subsequent return of the standard deviation. Whereas, Franco (2014) identified the risk of A-share, large capitalization income, and income and growth funds remain consistent during recessionary and nonrecessionary period. TripathiRao et al. (2012) defended the validity of the theory of MPT in the existing contemporary financial market. Similarly, Franco (2014) implemented the theory of MPT in comparing the standard deviation of the performance of 60 A share, large capitalization income, and income and growth funds before and after the recessionary economic period. Franco (2014) concluded in this research that the MPT was valid for his investigation of standard deviation optimization using the theory of MPT.

Mutual fund managers' performance. There is substantial literature related to the relationship between fund managers' performance and mutual fund return (Ünal & Tan, 2015). To this end, Barron and Ni (2013) investigated the effect of Morningstar ratings and mutual fund managers' turnover. Barron and Ni identified Morningstar rating

as the principal source of information for investors to determine the flow of their funds to mutual fund portfolio. Baptiste (2012) compared the individual investors' return on mutual fund portfolios versus the return of the DJIA. Further, as the fee revenue for mutual funds would increase the size of assets under management, Barron and Ni suggested that the rating of Morningstar to be the key factor of mutual fund managers' performance. The data was from Morningstar for the period 1994 to 2010.

Furthermore, Baptiste (2012) compared the individual investors' return on mutual fund portfolios versus the return of the DJIA. The researcher used secondary data from 2005 to 2010 to compute the mean average return, sharp ratio and average risk of the DJ and mutual fund holdings. Berk and vanBinsbergen (2012), however, measured the managerial skills in the mutual fund industry. Barron and Ni (2013) used the dollar-value a mutual fund manager adds as the measure of skill. Also, Berk and vanBinsbergen (2012) first used all actively managed mutual funds to increase the power of their test significantly, and used the tradable benchmark to evaluate all available Vanguard index funds that included the balanced funds and non-U.S. stocks. In their result, Baptiste (2012), Barron and Ni (2013), and Berk and vanBinsbergen (2012) showed that not only did skill existed, but also the skill was persistent, for as far as 10 years.

Also, Berk and vanBinsbergen (2012) documented that investors recognize the mutual fund managers' skill and reward it by investing more capital with the skilled mutual fund managers. Boerner (2015) inline to the role of mutual fund managers explained the U.S. department of labor guidance on fiduciary duty related to investing public retirement assets in sustainable and responsible manner. Boerner identified the

fund managers of public employees' retirement systems; including pension funds, 401K plans, mutual funds and other institutional fiduciaries operating under the Employee Retirement Income Security Act of 1974 (ERISA) rules. These retirement funds should be invested with fiduciary duty that determines by analysis of corporate environmental, social, and governance performance as well as traditional analysis of risk and return (Boerner, 2015). According to ERISA rules, individual or institutions that oversee and retirement plans are required to advise their clients with responsibility and accountability.

Measuring fund performance. Bolognesi et al. (2013) compared the capitalization method and the equally weighted approach method to evaluate the rate of return between the two equity index construction methodologies. Whereas, Lee (2013) measured the mutual fund industry risk management and performance sustainability using quantile regression model by observing the rank correlation between bond fund performance and asset volatility. Bolognesi et al. analyzed 10-year data of the DJ Euro Stoxx Index with cap-weighted portfolio indexes, using four (monthly, quarterly, semi-annually and yearly) reweighing frequencies to identify the maximum benefits of constraint strategy implicit in the equally weighted approach. Thus, Bolognesi et al. demonstrated that the excess returns not solely resulted by their size difference, which usually explains the difference in performance among the two strategies. Further, the Fama-French three-factor regression analysis and portfolio approach based on the market capitalization of the index constituents matched the result (Bolognesi et al, 2013).

Also, Lee (2013) used the quantile regression model to observe the rank correlation between bond fund performance and asset volatility included management fee

and Sharpe index. Similarly, Clare, Nitzsche, and Sherman (2013) referred to a comprehensive database that included a list of fund managers' performance delineated by location. The fund performance between volatility as a significant negative relationship, implied extreme values that had generated risk coefficient and fund performance change relations (Lee, 2013). Further, the absolute value of the display and risk coefficient fund had changed the relationship resulting in lower fund performance under review (Lee, 2013).

Managing mutual funds. Researchers used several techniques to identify an efficient method for managing mutual funds. For example, Clare et al. (2013) used four evaluation methods and a database of the performance of U.S. securities about the performance of fund managers delineated by location to identify efficient fund management technique. Similarly, Huang and Wang (2015) referred to corporations that employed a highly paid fixed manager to increase their fund performance. To make various comparisons, Clare et al. estimated the alphas of funds using capital asset pricing model (CAPM), single factor, and Fama and French three-factor model to identify the impact of location impact on the alpha generation. The result indicated a positive consequence of the U.S. managers produced higher mean alpha and displayed a greater tendency for positive performance with persistence in comparison to European fund managers.

Furthermore, Wang (2015) examined the influence of information in fund investors' purchase intention in the market. Similarly, Richardson (2016) examined the corporate excess cash investment and mutual fund performance. Richardson focused on

examining the relationship between mutual fund expenses including 12b-1 fees, sales load, management fees, total capitalization and the mutual fund performance in United States. Wang (2015) questioned the richness of internet information that might increase mutual fund investors perceived quality and decrease their perceived risk that in turn influenced investors' perceived value and purchase intention. Richardson (2016) identified that 12b-1 fees, sales load, management fees and total capitalization are not significant predictors of mutual fund performance. Whereas, Wang (2015) identified the limitations and suggested for further research.

Location and performance. Similar to Ünal and Tan (2015), Sundar and Irisappane (2015), Clare et al. (2013) used Treynor-Mazuy approach and recursive-portfolio formation technique to analyze location's impact on market timing and performance of a portfolio. Also, Karoui and Meier (2015) used a two-stage Heckman selection model to differentiate luck from the real managerial performance. Also, Clare et al. implemented the returns-based style analysis (RBSA) matrix to identify location's impact on investment style. Similar to CAPM, single factor, and Fama and French, the result from RBSA indicated a higher mean alpha for U.S. fund managers and displayed a greater tendency for positive performance with persistence in comparison to European fund managers.

Managerial heterogeneity. Right after identifying the importance of managerial heterogeneities, Huang and Wang (2015) investigated about employing a high fixed manager to evaluate the increase in fund performance. Similarly, Karoui and Meier (2015) used the holding-based measure to identify mutual fund tournaments. Huang and

Wang (2015) analyzed the impact of managerial heterogeneity on the performance of Chinese mutual funds. Whereas, Karoui and Meier (2015) started on the base of the tournament hypothesis, which states that managers of poorly performing funds actively increase the risk of their portfolio in the second half of the year. According to Huang and Wang (2015), managerial heterogeneities were the proxies for valuable human capital that were related to investment skills or strategies. Hence, Huang and Wang defined the return gap that extended to the performance of the standard deviation dimension as the volatility gap, which is the difference between fund return volatilities and buy-and-hold portfolio volatility.

Further, Huang and Wang (2015) identified that funds with higher manager fixed effects outperform those with lower manager fixed effects by 2%. The empirical findings of Huang and Wang showed the shifts explained changes in the return volatilities of equity mutual funds in buy-and-hold portfolio volatility. By contrast, Karoui and Meier (2015) used a two-stage Heckman selection model to differentiate real managerial performance from luck, and the result showed that hiring a highly paid fixed manager increased fund performance. Meanwhile, Huang and Wang (2015), identified the importance of managerial attributes as important as, or better than the traditional measure of return. Whereas, Karoui and Meier (2015) found weak evidence of tournament among the behavior of mutual fund managers.

Equity funds. In clarifying the correlation, Lee (2013) applied the panel smooth transition regression (PSTR) model to validate the nonlinear dynamic relationship between equity fund flow and investment volatility in Taiwan. Also, to analyze the

evidence, Lee based his study on his previous use of the threshold autoregressive model that investigated the relationship between equity funds' performance and investment. Further, Munoz et al. (2014) analyzed the financial and managerial ability of mutual funds managers of the U.S. and European social responsibility (SR) funds in line with other mutual funds. Whereas, Lin, Fan and Chih (2014) referred to the impact of the escalation of commitment of mutual fund managers on fund performance. Lin et al. (2014) identified numerous prior studies related to the potential existence of irrational investment behaviors among mutual fund managers. Those studies of irrational behaviors by mutual fund managers were practices of disposition effects related to their selling activities, although similar problems might be inherent to their buying processes (Lin et al., 2014). In the analysis, Lin et al. focused solely on the irrational behavior among mutual fund managers related to buying activities.

After the financial crisis, Lee (2013) recognized that the threshold of volatility would be a major index to the different business strategy of equity fund managers. For the large equity funds, fund managers tend to increase fund performance and expand the fund size that would lead to increase operating and increased turnover (Munoz et al., 2014). Lee added fund managers would use different business strategies under the volatility threshold value and the control variables of an asset of funds, management fee, and Turnover indicators. Also, Lin et al. (2014) presented evidence that mutual fund managers do display a tendency to escalate their commitment to losing stocks. Thus, the mutual fund managers' commitment to losing stocks would negatively affect the performance of the funds under management. Further, the reason for managers'

continual buy of losing stocks was because their irrational escalation of commitment not because their rational judgment (Lin et al., 2014).

Social responsibility funds. Similarly, Munoz et al. (2014) analyzed the financial and managerial ability of mutual funds managers of the United States and European social responsibility (SR) funds in line with other mutual funds. Whereas, Porter and Trifts (2014) provided evidence that merit funds performed better about peers on a style-adjusted-basis. Munoz et al. (2014) analyzed the yields of 89 European and 18 U.S. green funds for the period January 1994 to January 2013 and compared the funds' performance to conservative and other similar mutual funds. Further, Munoz et al. distinguished between domestic and global portfolios, controlled for the mutual fund's investment objective and the effect of crisis market securities. Thus, the result of U.S. SR funds in normal and financial crisis period revealed the SR funds obtained statistically insignificant performance in crisis periods but underperformed in an average period of the market. On the other hand, Munoz et al. (2014) identified that in periods of normal and financial crisis, the European SR funds revealed statistically insignificant performance irrespective of market condition. The managerial abilities, however, were not evident in the finding though the unsuccessful timing of the market was shown for both funds (Munoz et al.).

Job security. In regard to the contribution of MPT in job security, Porter, and Trifts (2014) provided evidence that merit funds performed better relative to peers on a style-adjusted-basis. Also, Porter and Trifts showed the evidence that performance relative to peers measured on a style-adjusted-basis play a role that was significant to

increase the mutual fund managers' tenure in their role. On the contrary, Marekwica and Steininger (2014) depicted that the transaction costs, the risk aversion, and the fees were higher when the level of wealth under-investment was lower. Porter and Trifts (2014) also bolted the fact that mutual fund managers, who underperform their peers, were more likely to lose their jobs. Further, Porter and Trifts revealed that the surviving mutual fund managers of any tenure even those mutual fund managers with more than 10 years of experience would not outperform the market with consistency. Hence, even experienced mutual fund managers had a hard time to over perform their style benchmarks and had not displayed a consistently superior performance over a specified period (Porter & Trifts, 2014).

When the level of wealth under-investment was lower, the transaction costs, the risk aversion, and the fees were higher (Marekwica & Steininger, 2014). Further, Marekwica and Steininger indicated that the fee associated with the mutual fund management were comparable to the transaction cost related to picking individual stocks. In a similar manner, Porter and Trifts (2014) identified that most experienced managers had underperformed the market by almost the same as their expense ratio. Thus, Porter and Trifts added that few skilled managers to outperform the market. Even those managers, who were identified as highly qualified, with positive alpha had been designated as minor, and they outperformed the market with mere chance than talent (Porter & Trifts, 2014).

Stock selection skill. One of the skills that mutual fund managers require is the ability to select stocks that increase on portfolios' return (Sundar & Irisappane, 2015).

Thus, Sundar and Irisappane referenced the fund managers' stock selection abilities and the market timing skill from the financial sectors in India. Concurrently, Ünal and Tan (2015) referred to the performances of the mutual funds that were managed by Polish domestic fund managers in Poland. Meanwhile, the six sample financial institutions from India portrayed issues and challenges that were related to the agents and the funds' sales managers irrespective of market performance assured higher returns to investors (Sundar & Irisappane, 2015). Sundar and Irisappane disclosed that the mutual fund managers in India were painting rosy pictures about the prospects of mutual funds' performance through their marketing scheme.

Furthermore, Ramaiah and Raut (2014) analyzed the factors that govern in the selection of funds. Whereas, He, Cao, and Baker (2015) analyzed the factors of fund selection in line with the performance and market timing ability of Chinese mutual funds. Though financial markets are important to the economic development of India, Ramaiah and Raut (2014) suggested that investors should always be conscious of the fact that mutual fund companies invest funds in capital market instruments such as shares, bonds, debentures and money market instruments.

Similarly, Narend and Thenmozhi (2016) examined the performance and determinants of funds flows to mutual funds and index ETFs in India. Narend and Thenmozhi provided evidence that investors took neither the past return nor the past performance of their benchmark returns of ETFs and index mutual funds. Further, Narend and Thenmozhi identified that the expense ratio was the major factor that attracted investments. Whereas, He et al. (2015) examined the performance and market

timing ability of actively managed Chinese stock mutual funds, and investigated how fund characteristics and fund flows relate to performance and market timing ability. Thus, He et al. identified that only about 7.5% of the sample funds had statistically significant risk-adjusted abnormal returns and even fewer demonstrated market timing ability.

Market timing and fund selection. In analyzing the fund managers' market timing and fund selecting skills, Sundar and Irisappane (2015) used Jensen's measure, Net selectivity model, and Treynor-Mazuy model. Similarly, Ünal and Tan (2015) used Treynor-Mazuy, and Hankinson & Merton regression analysis models. Thus, Sundar and Irisappane (2015) showed a significant correlation between fund managers' performance and the market timing ability of fund managers. On the contrary, Ünal and Tan (2015) indicated that polish fund managers showed no significant correlation between their market timing and fund selecting skills and their funds' performance. Similar to the fund managers in Poland, Sundar and Irisappane (2015) showed a significantly negative relation between fund managers performance and their stock selectivity ability (Sundar & Irisappane, 2015).

The evaluation of the fund managers' market timing and fund selecting skills by Ünal and Tan (2015) was during the period from January 2009 to November 2014. Ünal and Tan (2015) analyzed the fund managers' market timing and fund selecting skills right after the global financial crisis of 2008 and during the period of quantitative easing (QE). Hence, because the increase in money supply, that overshadowed the fund managers' performance, the capital was identified to overflow from developed to developing

countries (Ünal & Tan, 2015). As the financial market in Poland showed incredible progress, Ünal and Tan selected 14 polish equity fund managers to analyze their performance in comparison to market for the period under review. To that end, Ünal and Tan indicated that polish fund managers did not show selective ability, as none of the 14 funds had statistically significant with positive alphas.

Furthermore, to analyze the data, Ünal and Tan (2015) computed logarithmic returns of funds over weekly price indices of funds. Also, Ünal and Tan selected the Warsaw Stock Exchange price index to evaluate the funds' performance about the market. Ünal and Tan also referred to the Polish 3-month zloty deposit rate as a proxy, which was sourced from the Thomson Reuters DataStream. Hence, Ünal and Tan indicated that polish fund managers' selective ability statistically insignificant. In a similar manner, Ünal and Tans' Treynor-Mazuy, and Hankinson & Merton regression analysis models showed statistically insignificant result with polish fund managers' market timing ability. Finally, polish fund managers had neither the selective ability nor market timing ability during the ear of QE, and Ünal and Tan (2015) recommended further research to solidify the finding.

Corporate governance. In identifying managerial efficiency in portfolio management, Hifzalnab and AqeelMukhtar (2014) identified the higher correlation between determinants of banking sector performance and corporate governance within the managers of the commercial bank in Pakistan. The organizations, as a system of people, need to be harmonized through differentiating the architectural structure of roles and authority to attain their organizational goals (Thomas & Peterson, 2015). Hence, the

key to identifying the architectural structure in an organization is through identifying the degree of centralization (Hifzalnam & AqeelMukhtar, 2014). The importance of centralization is to coordinate those decisions that are in line with the organizational objectives at a higher speed (Luiz & Visser, 2014). Whereas, decentralization reduces the burden of higher management through increasing motivation and flexibility, which improve decision making (Hifzalnam & AqeelMukhtar, 2014). Hence, each organization identifies its authoritative standard, and there is no universally accepted level of centralization in organization's decisional architecture.

Also, Kallunki and Pyykkō (2013) examined about defaulting higher managers and their likelihood of financial distressing their company. Hence, Kallunki and Pyykkō (2013) depicted a supporting outcome that the managerial traits like over-optimism, overconfidence, and the illusion of control affected corporations' decision processes, and that these same personal traits explained personal over-indebtedness and defaults of credit. Pereira (2015) examined the determinants of the different leveled compensation structure of the top executives in Portugal, which is considered to have a less developed capital market. Further, Pereira (2015) described the relationship between performance and compensation as more elusive. Hence, Pereira concluded that higher education and location in the center of economic activity increased the propensity to receive a variable compensation with higher level of salary.

Centralization versus decentralization. The issues related to the centralization or decentralization of authority rests within the organization's hierarchical ability to assign decisional authority (Brickley, Smith, Zimmerman, & Willett, 2015). The extent of

concentration of decision in a single person or authority determines the degree of centralization in an organization (Thomas & Peterson, 2015). The setting of highly centralized organization would inhibit the managers of subsidiaries to attain the best performance because of their risk-averse operation (Reichmann & Rohlfing-Bastian, 2014). In the decentralized setting, however, the managers of HQ would delegate authority because lack of vital information to decide for the day to day activity of subsidiaries because of geographical location or failure to specialize in the field (Reichmann & Rohlfing-Bastian, 2014).

Furthermore, Reichmann and Rohlfing-Bastian (2014) discussed the importance of decentralized task assignment and centralized contracting to enhance managerial performance. Reichmann and Rohlfing-Bastian identified the three-legged toll of organization structure (Brickley et al., 2015), which included the allocation of decision rights, rewards and performance measurement, as vital in designing optimal incentive structure in organizations. Also, Reichmann and Rohlfing identified the practical authority to decide on the components was distributed across hierarchical levels, hence requiring adjusted centralized decisions about decentralized authority.

Decision rights. The organizational structure of a firm is the mechanism that managers use to coordinate the assignment of decision rights within the organization to attain their goals through assigning labor division and tasks to facilitate the flow of information (Robinson & Stocken, 2013). The identification of an appropriate location of decision rights within an organization, however, has been widely debated (Moeller, Maley, Harvey, & Dabic, 2016). The ambiguity to clearly identify the exact location of

decision rights within the organizational hierarchy in multinational companies complicates the decision-making processes, and could lead to an awkward situation in organization's decision processes (Shetach, 2013).

In identifying the relationship between decision rights and managerial performance Robinson and Stocken (2013) discussed about the U. S. based MNCs and their allocation of decision rights within their organizational architecture. Whereas, Ozaki et al. (2012) presented about the MNCs in Brazil and their approach towards decision rights in their subsidiaries to create the much-needed innovation in the organization. Robinson and Stocken (2013) identified a weak performance because the mismatch between the organization's environment and location of decision rights in the organizational hierarchy. Likewise, Ozaki et al. determined that assigning decision rights more towards subsidiaries would enhance agility to decision making and increase subsidiaries ability to create innovations. Further, Robinson and Stocken (2013) referred to the functional currency to allocate decision rights in which managers of subsidiaries make their currency when dealing with decisions related to operating, investing, and financing activities. Hence, when the functional currency was the head quarter reporting currency Robin and Stocken (2013) assumed that the decision right was centralized, alternatively, when the functional currency was the host country currency then they believed the decision right was decentralized.

Criticism and limitations of MPT. The MPT has criticism and limitations in its applicability. Although, the theory maintains its validity by allowing investors maximize return through diversification, the mathematical complexities to compute portfolio's

average return and its theoretical foundation requires thorough revisions to proof its validity over time (Omisore et al., 2011). Also, the foundation of MPT solely focuses on the average return and risk associated with an asset ignoring other crucial investment elements like reliability (Omisore et al.). Further, MPT limits to the assumptions that fail to reflect the impact of real financial parameters such as taxes, management cost, transaction cost, and limitations of access to credit limits that investors acquire from brokerage firms (Omisore et al.).

Furthermore, Hafer (2015) reviewed the theory of asset rotation that suggested as a demise of MPT and the birth of an investment renaissance. Hafer referred to Erickson's (2014) depiction of asset rotation, which based the argument on active management of exchange-traded funds (ETFs). According to Erickson, asset rotation showed proven success in asset management in the capital market. Also, Hafer referred to some researchers claim of MPT as was not a blueprint for long term success, but identified MPT as an aberration through time. The arguments posed towards discrediting MPT seemed to make more compelling arguments against passive investment.

The primary goal of this doctoral study is to gain insight into the evaluation of mutual fund managers decision making, to understand the market perception and ability to construct an optimal mutual fund by fund managers. This study was not into merely identifying the relationship and characteristics of mutual fund portfolios. Further, in this study, the goal is to determine those mutual funds lost by fund managers in identifying their behavior related to fluctuations in the market. Hence, the benefit of the MPT outweighs the limitation and criticism of the theory to apply for the study.

Asset rotation. To prove the theoretical argument against asset rotation, Erickson (2014) back tested a portfolio comprising either the S&P 500 Index or the Ibbotson Associates SBBI Long-Term Government Bond Index. Hafer (2015) referred to Erikson's alternative asset selection between the bond and S&P 500 based on their prior month's successful performance. The finding showed similar return to the long-term return of S&P 500 by simply buying the asset class that was up the previous month and shedding the one that was down. Hafer (2015) referenced to the concluding argument by Erickson (2014), which stated that the newly constructed portfolio was operating outside the efficient frontier. Further, the new portfolio by Erickson did not lie along the line of efficient frontier that show the relationship between risk/return and a portfolio's allocation of stocks and bonds.

Similarly, Zilinskij (2015) analyzed the fund investment portfolio rebalancing decision making in Europe. Whereas, Brouthers (2013) focused on institutional, transaction cost, and culture on companies from European Union (EU) to identify the foreign market entry mode choice and firm performance. Thus, the financial markets volatility and stock market prices fluctuations lead investors to seek for actively managed investment portfolio instead of choosing the long-term investment strategy (Zilinskij, 2015). Also, active portfolio management allowed fund managers to develop an opportunity to minimize losses in terms of market instability (Zilinskij, 2015). Further, Zilinskij identified that active portfolio management was riskier, and rebalancing the investment portfolio incur transaction costs for expected return.

Managing financial institutions. In referencing to managing financial institution, Dell'Atti, Labini, and Morella (2013) examined Italian banks' equity-based incentive plans. In addition, Pousa and Mathieu (2014) examined the impact of boosting customer orientation in banking through coaching. Whereas, Wilmarth (2014) examined the Citigroup's unfortunate history of managerial and regulatory failures. Dell'Atti et al. (2013) identified the limited implementation of equity-based incentive plans in the Italian banking sector during the period (2007-2010), and clearly demonstrated that, as far as these types of incentives were concerned, there was ample room for improvement and adjustments. Similarly, Pousa and Mathieu (2014) identified that managerial coaching behavior can help bank employees develop their customer orientation and increase their performance, as well as reduce opportunistic behavior or sales orientation. Referring to Citigroup's history, Wilmarth (2014) raised deeply troubling questions about the ability of bank executives and regulators to supervise and control today's megabanks.

Similarly, Postolache (2014) depicted the role and importance of managerial accounting into banking sector. Hossain, Alam, Islam, and Hecimovic (2015) referred to the importance and obligation of managers in corporate social and environmental responsibility reporting. After the 2008 financial crisis, commercial banks and other financial institutions had hard time to effectively manage their subsidiaries (Postolache, 2014). Postolache looked at all the commercial banks passive and active operational expenses and identified that banks use of passive operational cost to calculate product cost. Thus, reducing cost of the passive operational activities would provide cheaper financial resources towards contribution of efficient bank management.

In visualizing the contemporary ideas, Busco, Caglio, and Scapens (2015) pointed about management and accounting innovations on what and why they were adopted. Whereas, Sabri, Juen, Othman, and Rahim (2015) focused on a mediation model related to financial literacy, financial management practices, and retirement confidence among women working in government agencies. Also, Ji and Lee (2015) analyzed the relationship between managerial overconfidence and the going concern modified audit opinion decisions, and identified that auditors do not value managers, who are overconfident, in financially distressed companies. Busco et al. referred to internal variables like efficiency, profitability, and aid to decision making. Sabri et al. (2015) used structural equation modeling in identifying the role of mediation in financial management practices related to financial literacy and confidence upon retirement.

Multinational financial institutions. In validating the common sense, Martini (2015) analyzed about the optimal focus of transfer prices related to pre-tax profitability inline to tax minimization. Also, Liu, Li, Li, and Cui (2014) examined the transfer of knowledge in lower level management control and transfer of knowledge across the border from acquiring company to the acquired emerging economy (EE) companies. Martini (2015) looked at the influence of transfer prices in managerial decisions and the determination of corporate taxes in multinational corporations (MNCs). In his analysis, Martini argued to validate the common-sense suggestion that states about transfer price decision ought to be made to maximize the firm's after-tax profit so that to achieve the optimal trade-off between tax minimization and pre-tax profitability.

Furthermore, Martini (2015) identified that the common-sense suggestion would not hold in all. Whereas, Liu et al. (2014) implemented the theory of organizational learning using multiple-case study in three emerging economy companies. Liu et al. identified that the employees' cooperation and willingness in the acquiring firm, and language barriers were the main factors, which influence the relationship between parent companies' knowledge transfer process and management control process. Similarly, Martini (2015) based the analysis on a model of decentralized firm that faced asymmetric information with respect to operation. Hence, Martine demonstrated the validity of the assumption related to the negotiated policy of transfer pricing as the MNCs ultimate organizational choice to hold true only when the high-tax division's productivity is high.

Cross-border risk. In regard to cross-border risk, Lupo-Pasini and Buckley (2015) asserted about global systemic risk and international regulatory coordination in-line with national sovereignty and financial stability. Similar to Martini (2015); Liu et al. (2014); Lupo-Pasini and Buckley (2015) identified that while international law plays a crucial role in addressing global systemic risk, but could not address all sources of global instability. This is especially true when the parent company from the EE has limited learning experience and faces substantial language barriers between itself and its acquired firm (Liu et al.).

In a similar manner, Batten, Loncarski, and Szilagyi, (2013), analyzed the cross-border banking within Europe by comparing the aggregated international assets and liabilities of banks reported in the Bank for International Settlements (BIS). Batten et al. identified the gross and net asset-liability positions as time-varying and responsive to

crisis periods, through better matching of international assets and liabilities, as well as through the realignment of asset positions to reduce balance sheet risks. Further, Batten et al. initially considered the BIS to be worldwide, but later identified the cross-border flows within Europe, which the member countries separated as core and peripherals.

Cultural impact. The relationship between culture and management control systems (MCS) is crucial in identifying management performance (Lee & Widener, 2013). To understand the relationship between culture and managerial performance, Lee and Widener surveyed a sample of attendees at the 2010 American SAP Business Objects Annual User Conference. Whereas, Gilbert and Heinecke (2014) focused on the success factors of regional strategies for multinational corporations (MNC). Lee and Widener (2013) analyzed a diverse sample set of MCS users like SAP, which is the largest business intelligence (BI) vendor, IBM, Oracle, and Microsoft. Hence, Lee and Widener identified that the source of managerial success was via the use of MCS, specially the success in BI systems came from matching cultures with the types and uses of MCS.

Furthermore, Collins and Riley (2013) showed the direct relationship between alliance portfolio diversity and firm's performance. Whereas, Pellinen, Törmäkangas, Uusitalo and Munnukka (2015) showed the beliefs that affect additional investment intentions of mutual fund clients. Collins and Riley (2013) used path model approach to identify mutual fund investors' behavior. Thus, Collins and Riley provided insight into how characteristics of alliance portfolios moderate the relationship between alliance portfolio diversity and firm performance. Similarly, Pellinen et al. (2015) divided investors' behavior based on their risk and distribution channels used. Further, Pellinen

et al. identified that safety of the investment was important for branch office investors, whereas obtaining a good return was important for Internet investors.

Similar to the academicians and practitioners (Gilbert & Heinecke, 2014), Lee and Widener (2013) identified the importance of companies' cultural ability to use and exploit the system in a unique way not MCS that generate firms' better performance. The BI software system that SAP company uses includes Dashboards and visualization, Query, analysis, and reporting, and managing quality of data (Lee & Widener, 2013). Thus, there are several configurations of culture and choice of systems for users, managers, and practitioners to outdo in business (Lupo-Pasini & Buckley, 2015).

Rival and Alternative Theories

As to cover sufficient literature related to MPT, I a discussion of two addition theories. The two theories include the principal-agent theory, and the transactions cost economic theory. Researchers using the principal-agency theory assert that mutual fund managers' actions that may not always be directed towards the investors best interest (Gilbert & Heinecke, 2014). Transaction cost economics theory include the assumption that mutual fund investors and managers do not have equal information available for both parties to do a fair transaction (Li, Ardit, & Wang, 2014).

Principal-agent theory. The principal-agent theory refers to the relationship between owners (the principals) and those who manage the operations of the corporation (the agents) (Block, Hirt, & Danielsen, 2011). In the fund management business, the principals refer to the financial experts or corporate officers and the agents refer to the individual investors in mutual fund market. As identified in the Mutual Fund Directors

Forum, fund managers need to properly assess and address the risk associated with investing in mutual fund, and the financial harm that can cause to shareholders (Franco, 2014). The agency theory obligates principals to demonstrate their fiduciary duty of maximizing the assets of their clients (Junarsin, 2013). Thus, agency theory, in its simplest form, is a philosophy that asserts of company managers action that may not always be directed towards the clients' best interest because the conflict with their personal interest (Gilbert & Heinecke, 2014).

Managers of the subsidiaries of financial institutions are required to assess appropriately the risks associated with managing the investment of mutual funds, and the financial hardship that may cause harm to shareholders (Franco, 2014). The core obligation of the principal, according to principal-agency theory, is to maximize the assets of their client based on their fiduciary duties (Junarsin, 2013). Further, Gilbert and Heinecke (2014) identified the importance and efficiency of regional autonomous management when dealings with operations located in different parts of the world.

Furthermore, Glinkowska and Kaczmarek (2015) identified one of the characteristics of the agency theory is that managers in their decision making consider only economic rationales, not situational factors. Also, although one of the premises of the principal-agency theory is the rational behavior of agents and principals, there are times when a reasonable person might behave in a manner that is irrational (Bendickson, Muldoon, Liguori, & Davis, 2016). Thus, the irrational act by either the agents or principals would create sub-optimal economic conditions in an organization that could reduce the value of the corporation (Franco, 2014).

Namazi (2013) stated that researchers use principal-agency theory for different organizational, economical, behavioral and controlling roles, and for a robust framework that can be entangled in an endorsement of management control. Also, the existing information on contents and amounts of the public and private information that exists in the domain of the managerial accounting systems determines implementation of a control mechanism (Franco, 2014). Similar to the transaction cost economic theory, the agency theory is a contractual agreement (Bendickson et al., 2016). The adoption of the principal-agency theory paradigm provides a delegate and accurate scientific mathematical and quantitative model to explain the importance of exerting control in organizations (Namazi, 2013). Hence, the model explains the implementation of the powerful managerial technique and the organizational role of the agency theory.

Practicality. In the search for a practical aspect of the agency theory, Buchanan, Chai and Deakin (2014) referred to hedge fund activism of shareholders and managers in Japan and explored the implication of the agency theory. The Buchanan et al. (2014) identified in the 2000s the confrontational shareholder activism, which was practiced by American and British hedge funds, failed to gain acceptance from Japanese firm managers and shareholders or to alter the internal focus of corporate governance practices in Japanese firms. Also, in search for the implication of agency theory in the capital structure, Dawar (2014) identified the relationship between capital structure and firm performance in India. Dawar used agency theory to conduct an empirical investigation to determine the impact of capital structure choice on firms' performance. Buchanan et al.

implemented the standard agency-theoretical model to understand corporate governance in the business.

Buchanan et al. (2014) choice of the standard agency-theoretical model as the only possible option to test using empirical research was instead of building assumptions into the analysis. To that end, Buchanan et al. identified that the perception of Japanese managers is to disregard themselves as agents of shareholders and, conversely, the shareholders' understanding is disregarding themselves as principals. Also, the Buchanan et al. indicated that the principal-agent model might be a weak fit for individual firms under certain national context. Whereas, Dawar (2014) used the fixed effect panel regression model to a ten-year data, from 2003 to 2012, to analyze and identify the relation between firms' performance and leverage after controlling for factors such as liquidity, tangibility, age, size, advertising, and growth.

Limitations. The agency theory has some limitations in its applicability. Bendickson et al., (2016) discussed the agency theory and its change over time by mainly focusing on the contractual principal-agent relationship. Also, Bendickson et al. (2016) assessed on how the theory evolved from several social and economic developments. In doing so, Bendickson et al. explained how the once prominent theory became short with regarding varying realms of entrepreneurial and multiple contemporary business phenomena. Hence, Bendickson et al. provided insight on the agency theory across social, entrepreneurship, and family business.

Furthermore, Bendickson et al. (2016) identified limitations of agency theory in its explanation of the phenomena in modern business. Also, Bendickson et al. (2016)

referred to agency theory as outdated that has limited explanatory power regarding the modern-day business and with more recent disciplines such as entrepreneurship. The agency theory, however, can maintain its relative explanatory power by identifying primary boundaries of the conditions under review (Bendickson et al., 2016). Also, although Bendickson et al. were limited by their choices of major events that would allow them to influence the agency theory.

The ultimate goal of Bendickson et al. (2016) was to open insight into the evaluation of mutual fund managers' decision making, to identify the marketability and perception in constructing mutual funds that match their clients' expectation. Thus, Bendickson et al. determined the relation between the agent and principal in the mutual fund investing industry. Further, Bendickson et al. identified the mutual funds that were lost by fund managers in determining their behavior related to fluctuations in the market. Hence, the benefit of the agency theory outweighs the limitation and criticism of the theory to apply for the study.

Transaction cost economics theory. The theory of transaction cost economics embeds the assumption that any transaction in an organization has a cost associated with it (Leonard & Wilkinson, 2014). Also, the theory of transaction cost economics entails the assumption that information is not equally available for both parties to do a transaction (Li et al., 2014). Information between parties is not shared, and there is a prohibitively high cost associated with obtaining the information (Li et al., 2014). Leonard & Wilkinson (2014) identified costs during the transaction, as created by the interaction of opportunistic behavior and uncertainty exchanges. Hence, in a situation

where an information impacted-ness combines with opportunistic behavior, the cost of transaction increases in-line with the escalation of monitoring and contracting (Leonard & Wilkinson, 2014).

The transaction costs can be separated as the cost associated with doing business outside the firm (market cost) and the cost of a transaction associated with the use of a hierarchical form of governance -transacting within the organization (bureaucracy costs) (Leonard & Wilkinson, 2014). Corporate governance constitutes a set of standardized market instruments, which encourages self-interested managers to maximize the value of their companies (HifzaInam & AqeelMukhtar, 2014). The information systems, similar to the transaction cost, either focuses on the external market forces or the internal aspects of the firm (Leonard & Wilkinson, 2014). Also, the principles of corporate governance are to require companies apply the principles that promote a good corporate governance in the organizations (Jhunjhunwala, 2014). Hence, understanding the transaction cost economics theory enhances the understanding of corporate governance, which promotes organizational value.

The cost associated with transactions like compliance and enforcement, monitoring, negotiation, contracting, coordinating and search costs might be exacerbated by the asset specificity, transaction frequency, and information impacted-ness (Leonard & Wilkinson, 2014). The factors that affect the transaction cost are two human-related categories: the positions of the owner and the contactor; and two environmental-related categories: the project management efficiency, and the effectively to analyze employee performance (Ochoti, Maranga, Muathe, Nyabwanga & Ronoh, 2012) environment (Li et

al., 2014). Also, the management team of a company need to identify the performance standards, core competencies, and communication methods used to effectively analyze employee performance (Ochoti et al., 2012). Further, the IT system of organizations may be used to reduce the transaction costs through improving communications between employees-to-employee, employee-to management, and business-to business (Leonard & Wilkinson, 2014).

Independent Variable: Mutual Fund Class Type

The class type of a stock is associated with the amount of voting right per stockholders' share (Garyn-Tal, 2015). Whereas, Garyn-Tal indicated that mutual fund class type refers to the different fees that are associated with the class type of a fund. The fees related to mutual fund class type include 12b-1 fees, front-end load, back-end load, and expense ratio. The major mutual fund class types include A-shares, B-shares, and C-shares (Vidal-García, 2013). Predominant mutual fund class types in the market include A-shares and C-shares (Franco, 2014). Thus, I concentrated on class A and C for the analysis of this study.

Class-A shares. The noticeable cost difference between classes A and C is the load fees on shares (Vidal-García, 2013). Class-A shares have front-end load fees, which is the value taken upfront from the initially invested principal (Brealey, Myers, & Allen, 2014). The front-end load lowers the principal of the mutual fund that earns interest (Brealey et al., 2014). Brealey e al. established that the 12b-1 fee, however, tends to be lower for class A shares than C shares. Also, the A shares take more time to recover the principal (Brealey et al.). Further, the expense ratio of A shares is lower than C shares

(Franco, 2014). Hence, investors, who plan to hold their investment for a longer period, may select A shares to C shares (Franco, 2014).

Class-C shares. Class-C shares have the end-load fees, which is a lower fee that might be charged if the fund is withdrawn before one-year anniversary (Brealey et al., 2014). The back-end load of C shares typically costs 1% of the amount withdrawn before one year (Bianconi, MacLachlan, & Sammon, 2015). The back-end load fee does not affect the principal of the mutual fund that earns interest (Bianconi et al., 2015).

Bianconi et al. established that the 12b-1 fee, however, tends to be higher for class C shares than A shares. Also, fund managers do not charge multiple surrender-charges, and in the C shares, investors do not need extra time to recover the principal (Brealey et al.). Further, the expense ratio of C shares is higher than A shares (Franco, 2014). Hence, investors, who do not have the plan to hold their investment for a longer period, may prefer C shares to A shares (Franco, 2014).

Independent Variable: Portfolio Turnover

The term portfolio turnover refers to the fund managers' assets change (buy and sell) frequencies to rebalance the holdings of a portfolio (Beyhaghi & Hawley, 2013). Researchers take the lesser of the number of securities sold or the amount of securities purchased within a year and divide it by the net asset value (NAV) to compute portfolio turnover (Bianconi et al., 2015). Brokerage firms usually report the portfolio turnover of a fund annually (Bianconi et al.). A fund with higher rate turnover usually incurs higher transaction cost than a fund with lower turnover rate (Franco, 2014). Hence, a higher

trading activity in a fund may decrease the return unless the superior performance of the fund offsets the cost of the transaction (Franco, 2014).

According to Drenovak and Rankovic (2014), portfolio managers focus on asset allocation, which refers to the frequent rebalancing of the stocks under holdings. Drenovak asserted that fund managers allocate the asset (portfolio) under management to either minimize risk or maximize return. Similarly, Milan and Eid (2015) defined actively managed funds as the core means used by fund managers to increase participation in the equity market. Also, Drenovak and Rankovic (2014) realized that investors always seek a realized or expected return that commensurate with their level of risk. Portfolio managers, however, would always report the realized return (Milan & Eid, 2015).

An actively managed portfolio implies frequent portfolio rebalancing (Drenovak & Rankovic, 2014). Thus, managers continually rebalance their portfolio to secure a better return than a passively managed portfolio. The activity of rebalancing, however, initiates cost of the transaction that depletes the rate of return (Milan & Eid, 2015). Therefore, portfolio rebalancing may result in accumulation of cost of the transaction that surpasses the performance of the portfolios under management (Drenovak & Rankovic, 2014).

Independent Variable: Longevity of the Fund

The longevity of the fund refers to the years between the mutual fund's first appearance and last appearance (Beyhaghi & Hawley, 2013). Mutual funds with shorter longevity (3 to 5 years) do not show a good picture of their long-term performance

(Edelen et al., 2013). Whereas, mutual funds with moderate to longer longevity (5, 10, and longer years) do show a bigger picture of their longer-term track records related to their performance (Edelen et al.). Hence, the longevity of a fund may depict a better picture when evaluating return of a mutual fund (Brealey et al., 2014). Further, some mutual fund managers agree that the longer the longevity of a fund the higher was the rate of return (Brealey et al.).

The manager's ability to manage mutual funds and fund's longevity can be measured using the age of the fund (Ferreira, Keswani, & Ramos, 2013). According to Ferreira et al. (2013), the impact of fund's age in performance can be positive or negative. Some researchers argue that new funds are agile, and their flexibility contributes towards higher portfolio's survival with performance (Ferreira et al., 2013). Whereas, Milan et al. (2015) argued that new mutual funds face higher cost and lower experience to survive. Hence, Milan et al. perceived that longevity of fund might have an advantage over novice funds when it comes to performance. Fund's age, however, did not show direct relations to the mutual fund's performance (Ferreira et al.).

Independent Variable: Management Turnover

The management turnover of a mutual fund refers to how frequent the management team changes over a specific period (Edelen et al., 2013). Mutual funds with more than 10 years or higher management longevity perform better than funds with less than 2 years of management longevity (Bianconi et al., 2015). Bianconi et al. identified that managers that fall below the benchmark of their competitors lose their job. Further, Barron and Ni (2013) investigated the effect of Morningstar ratings and mutual

fund managers' turnover. Barron and Ni identified Morningstar rating as the principal source of information for investors to determine the flow of their funds to mutual fund portfolio. Also, Khalil, Hassan, and Qamar (2016) discussed about the attributes of fund managers and effect on mutual fund performance. Hence, Khalil et al. identified the impact of managerial attributes like age of manager, experience of manager, qualification of manager, age of fund, and management fee on fund performance.

Porter, and Trifts (2014) stated that fund managers who underperform relative to their peers' style-adjusted performance would cut short their career longevity. Similarly, Kuhle (2013) showed the evidence that fund managers longevity positively contributes towards funds' superior return. Also, Porter and Trifts (2014) showed the evidence that performance relative to peers measured on a style-adjusted-basis play a role that was significant to increase the mutual fund managers' tenure in their role. Porter and Trifts bolted the fact that mutual fund managers, who underperform their peers, were more likely to lose their jobs. On the contrary, Kuhle (2013) showed the evidence that real estate fund managers longevity showed mixed result with the contribution of fund managers' longevity towards funds' superior return. Further, Porter and Trifts (2014) revealed that the surviving mutual fund managers of any tenure even those mutual fund managers with more than ten years' experience would not outperform the market with consistency. Hence, even experienced mutual fund managers had a hard time to over perform their style benchmarks and had not displayed a consistently superior performance over a specified period (Porter & Trifts, 2014).

Dependent Variable: Risk-adjusted Performance

Researchers use Sharpe ratio to identify funds' annual risk-adjusted rate (Ayinde et al., 2015). The Sharpe ratio is computed as the ratio of the excess return of the fund divided by the standard deviation (Tan, 2015). The mathematical computation of Sharpe ratio and Treynor ratio are similar. The main difference is that the Sharpe ratio uses the total risk, whereas the Treynor ratio uses the market (systematic) risk (Barratt & Lenton, 2014). Thus, I used the Sharpe ratio to identify funds' risk premium per total risk.

The Sharpe ratio is one of the statistical data analysis methods that researchers use to evaluate fund performance (Tan, 2015). Tan stated that researchers use Sharpe ratio to evaluate fund managers' performance. A higher Sharpe ratio would indicate a better fund performance. The Sharpe ratio, however, is a function of R_p , R_f , and σ_p . The R_p is the average rate of return of the portfolio, for this study it included the years 2010 to 2015. The R_f is the risk free average rate of return. The funds' standard deviation (σ_p) reflects the funds' total risk (Tan, 2015). In this study, I used the already computed Sharpe ratio from the funds' prospectus.

Methodologies

The review of literature related to researchers' use of quantitative methodology to analyze the performance of mutual fund was substantial. Franco (2014) used quantitative methodology to analyze performance of mutual funds. Also, quantitative researchers use statistical analysis to analyze relationship between variables (Lach, 2014). Barron and Ni (2013) used quantitative statistical analysis to investigate the relationship between Morningstar ratings and mutual fund managers' turnover. Also, Lee (2013) used

quantitative statistical mode to observe the rank correlation between bond fund performance and asset volatility included management fee and Sharpe index. Therefore, the use of quantitative method is appropriate because I examined the relationship between a set of predictor variables and a dependent variable.

Furthermore, Baptiste and Schaefer (2014) used a quantitative methodology with a causal-comparative research design, to determine whether mutual fund portfolios provide shareholders with superior expected returns for an acceptable level of risk. Also, Kopsch et al. (2015) used a quantitative methodology relied on Swedish quarterly data on mutual fund flows over the period 1998-2013. Baptiste and Schaefer (2014) identified that the expected mean return of mutual funds outperformed the Dow Jones Industrial Average, confirming the outcomes of past research. Hence, Baptiste and Schaefer (2014) suggested that shareholders and practitioners might improve their investment decisions by using MPT strategies.

Researchers used the correlation design, as used for this study, to explore the relationship between variables without intervention in the processes of the research (Polit & Hungler, 2013). Zabiulla (2014) used correlational design to identify the relationship between fund managers' ability to select stocks and the performance funds under management. Also, Huang and Wang (2015) implemented correlational design to identify the relationship between fixed management and fund performance. In clarifying the correlation, Lee (2013) applied the panel smooth transition regression (PSTR) model to validate the nonlinear dynamic relationship between equity fund flow and investment volatility in Taiwan. Whereas, Lin et al. (2014) referred to the impact of the escalation of

commitment of mutual fund managers on fund performance. Meanwhile, Karoui and Meier (2015) used correlational design to identify the relationship between fund managers' management skill and fund performance. Therefore, the correlation design is appropriate, as I examined the relationship between a set of predictor variables and a dependent variable.

Transition and Summary

In this section of the doctoral study, the problem statement identified that mutual fund portfolio managers do not always meet the expected risk-adjusted performance. Founded on premise of the modern portfolio theory (MPT), the purpose of this doctoral study was to examine the relationship between mutual fund type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016. The population for the doctoral study included archival data related to U.S. based equity mutual funds. The implications for positive social change include the potential to benefit individual investors and families by improving customer satisfaction and investment returns.

In section 2 of this doctoral study, I further justified the implementation of quantitative correlational research methodological design to validate the analysis. Also, the section included a description of my role as a researcher, identify and justify the methodological design of this doctoral study. The final section, Section 3, included pre-data analyzing procedures, and post data interpreting assumptions to validate the findings of this doctoral study.

Section 2: The Project

The purpose of Section 2 is to provide an overview of the implementation of quantitative correlational research methodological design to validate the analysis. As a researcher, I describe my role and justify the methodological design of this doctoral study. In Section 2, the goal was to identify the population, samples, and sampling method in line explaining the data collecting instrument and processes. Further, this section included predata analyzing procedures, and postdata interpreting assumptions to validate the results.

Purpose Statement

The purpose of this doctoral quantitative correlation study was to examine the relationship, between mutual fund type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016. The independent variables were mutual fund type, portfolio turnover, fund longevity, and management turnover for the 5-year period ending 2016. The dependent variable was the annual fund risk-adjusted performance. The population for the study comprised archival data from U.S. based equity mutual fund companies. Mutual fund managers may benefit from the results of this study by identifying ways to successfully run their funds under management. Investors may benefit from the result of this study as they seek a portfolio that has a performance, which fits their risk criteria.

Role of the Researcher

The role of a quantitative researcher is to remain objective through the processes of designing a research problem, collecting data relevant to the study, analyzing the data,

and interpreting the findings to draw conclusions (Luft & Shields, 2014). Also, the quantitative researcher is to remain neutral from his values and experiences as not to influence the findings (Chapman & Schwartz, 2012). Further, the quantitative researcher is to show ethical integrity by objectively disconnecting the study from the influence of any organization (Ferrel, Fraedrich, & Ferrel, 2014).

My role as a quantitative researcher is to remain objectively independent of my expertise in the process of collecting, analyzing the secondary data, and interpreting the findings. For the last 10 years, I worked as a banker and financial advisor, which was instrumental in understanding managing mutual funds. My role as a researcher, however, is not to have any connection with any form of the mutual funds' managers under this study. Further, my role as a researcher would not include providing investor advice on the funds related to this study.

My role as a researcher is to comply with the ethical standards of the Belmont Report. The three ethical frameworks of the Belmont Report 1979 that researchers follow are respect, beneficent, and justice (U.S. Department of Health and Human Services, 2014). Because my intent was to use secondary data for this doctoral research, the Belmont Report protocol is not applicable to my study. One of the applications of ethical standards of the Belmont Report related to respect is informed consent and the selection of human participants (U.S. Department of Health and Human Services, 2014). The ethical standard in business research is for researchers to maintain the highest possible standards of moral values (Ferrel et al., 2014). Hence, my role as a researcher is to maintain a high level of ethical value throughout the research process.

Participants

For this doctoral study, there are no human participants. The study used publicly available secondary data relating to U.S. based equity mutual funds for the 5-year period ending 2016. The use of secondary data is an acceptable strategy in a quantitative correlational study (Boyer, Garder, & Schweikhart, 2012). Researchers use secondary data to access a large available set of collected data (Hennebel, Boon, Maes, & Lenz, 2015). Researchers can save more time by using secondary data as compared to using primary data (Fanning, 2014). The absence of the human element in this study limits the risk related to compliance with the 1976 Belmont Report's requirements. However, I was mindful of ethical considerations embedded in the Belmont Report related to research during the completion of this study.

Research Method and Design

Researchers have a choice of several methodologies on their study's purpose. Researchers use quantitative research methodology when focusing on the statistical analysis of relationships between variables (Lach, 2014). Researchers choose the design of their research following their choice of methodology. The correlational design is an ultimate choice for researchers when trying to measure the relationships among variables without intervention in the research processes (Polit & Hungler, 2013). In this doctoral study, the goal is to determine the extent of the relationship between the mutual fund type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance. Hence, the most appropriate research methodology and design for this doctoral study were quantitative and correlational respectively.

Research Method

Research methodology is a technique used by researchers in the collection, organization, and analysis of information to draw conclusions (Garcia & Zazueta, 2015). The three-methodological choices for conducting research are quantitative, qualitative, and mixed (McCusker & Gunavdin, 2015). Researchers chose quantitative methodology to identify a relationship between variables using statistics to analyze numerical data (Lach, 2014). Because the goal of the study was to identify a relationship between variables of this doctoral study, a qualitative methodology approach met the requirements for this doctoral study. By contrast, researchers select qualitative research methodology to analyze textual data (McCusker & Gunavdin, 2015). A mixed research methodology is the use of both quantitative and qualitative methodologies (Lach, 2014).

The focus of researchers using qualitative methodology is to analyze textual data collected via interviews, observation, or experience (Chincarini, 2013). Similarly, researchers use the mixed methodology to use the qualitative and quantitative methodologies jointly to analyze textual and numerical data (Lach, 2014). Hence, neither the mixed methods nor the qualitative methodologies met the needs for this doctoral study.

Research Design

Three quantitative research designs include (a) correlational, (b) descriptive, and (c) experimental (Humphreys & Jacobs, 2015). According to Polit and Hunger (2013), researchers implement hypothesis testing in quantitative correlational design to measure the correlation between variables without intervening in the research process. Also,

researchers use correlational design to test a hypothesis for more than two related variables (Boslaugh, 2013). Further, Boslaugh (2013) clarified that researchers use multiregression and multicorrelation analysis for multiple related variables. In this doctoral study, the goal is to measure the correlation between variables and regression of a dependent variable with several related independent variables.

The multiple correlations and multiple regression quantitative correlational analysis are appropriate to design for this doctoral study because of alignment with the objective of avoiding and minimizing systematic bias or errors. Also, I implemented descriptive statistical analysis to understand the variables further. Researchers use descriptive statistics to summarize their result in numerical or graphical form (Humphreys & Jacobs, 2015). Whereas, researchers use descriptive research design to identify the behavior of groups, individuals, or situation and the frequency of the occurrence of certain phenomena through observation and without influencing (Polit & Hungler, 2013). The statistical tools of descriptive design such as mean and standard deviation do not show the relationship among variables unless the researcher conducts test of hypothesis via correlational design (Sekaran & Bougie, 2013).

In experimental design, researchers randomly assign variables to a group or category (Humphrey & Jacobs, 2015). According to Humphrey and Jacob (2015), researchers use an experimental design to measure the influence of a random variable on another variable via treatment so that to identify causation between variables. Researchers use the experimental design to manipulate an independent variable by assigning subjects to different conditions (Polit & Hunger, 2013). Polit and Hunger

(2013) identified the reason for the use of experimental design by researchers as to clarify the relationship between the result of the experiment and the controllable conditions. A quantitative design is not experimental if there is no involvement in the determination of causation of treatment.

Population and Sampling

According to the 2015 Investment Company Institute (ICI) report, there are 3,612 U.S. based open-ended mutual funds in the financial market. Thus, the target population of this doctoral study encompasses archival data from all the U.S. open-ended equity mutual funds who invest in Class A and C stocks. The variables include mutual fund type, portfolio turnover, fund longevity, fund turnover, and fund risk-adjusted performance for the 5-year period ending 2016. Because the fund risk-adjusted performance is the ratio of the excess return of the fund divided by its beta, the data in the mutual fund included the beta for each mutual fund. The dataset also included information related to the annual performance of the S&P 500 to measure the surplus return of each mutual fund.

The key to producing valid results and identifying the interaction between variables is to have an appropriate sample size (Landau & Stahl, 2013). Researchers select a manageable sample size that allows them to clarify the relationship between the independent and dependent variables (Durand, 2013). The identification of the minimum required size of mutual funds is vital to validate this doctoral study. There are more than 7,000 mutual funds domiciled in United States. (Risik, 2013).

The two primary methods of collecting samples include probabilistic and nonprobability sampling (Lamb, Hair, & McDaniel, 2015). I employed probabilistic random technique in selecting a sample of U.S. mutual funds from that invest in Class A and C stocks. Probabilistic sampling is a sampling method used where each element in a targeted population has a known and nonzero probability of being selected (Lamb et al., 2015). Advantage of probabilistic sampling include; equal representation of the population, time and resources effectiveness, involves lesser degree of judgement, and comparatively easier way of sampling (Bornstein, Jager, & Putnick, 2013). Disadvantage of probabilistic sampling include; more concentration of a specific class of sample, and monotonous or redundancy of task (Uprichard, 2013).

Types of probabilistic sampling include (a) simple random, (b) stratified, (c) cluster, and (d) systematic (Lamb et al., 2015). Researchers use simple random sampling technique to allow for equal probability of selection of each unit within the population (Chincarini, 2013). In stratified sampling, researchers classify the population into different strata based on the similar attributes, such as size or revenue (Lamb et al., 2015). According to Barratt and Lenton (2014), researchers use cluster sampling by dividing the population into clusters with common characteristics before selecting the sample. Systematic sampling is the systematic selection of part of the population before drawing a proportionate sample size (Barratt, Ferris, & Lenton, 2014). I rejected stratified, cluster, and systematic sampling because the purpose of this doctoral study did not match the purpose of each of these techniques.

Nonprobabilistic sampling is a sampling method used where not all elements in a targeted population have a chance of being selected (Lamb et al., 2015). Researchers use nonprobability sampling because convenience, easy access, or when the research goal does not require a representative sample (Yin, Wang, & Yang, 2014). In addition, researchers choose a nonprobabilistic sampling technique to minimize cost and time by selecting samples based on their judgment (Uprichard, 2013). An advantage of nonprobability sampling includes cost effectiveness and allows the use of one's prudent judgement (Bornstein et al., 2013). Disadvantages of nonprobabilistic sampling include the focus on simplicity than effectiveness and the higher dependence on judgment (Bornstein et al., 2013). Hence, I rejected the use of a nonprobability sample in this doctoral study because of the requirement of the sample to represent the population. A researcher cannot make inferences about the population using a nonprobability sample (Yin et al., 2014). The probabilistic random sampling technique is the most appropriate sampling technique for this doctoral study.

The G*Power 3 1.9.2 is a recommended tool to calculate the appropriate sample (Button et al., 2013). A power analysis, using G*Power 3.1.9.2, was conducted to determine the minimum required sample size to achieve statistical power that represent the population of the study. An a priori power analysis, assuming a medium effect size ($f^2 = .15$), $\alpha = .05$, and four predictor variables, identified that a minimum sample size of 80 funds was required to achieve a power of .80. Increasing the number of funds to 165 would increase the power to .99. Therefore, the sample size for this doctoral study needed to include 80 to 165 mutual funds (Figure 2).

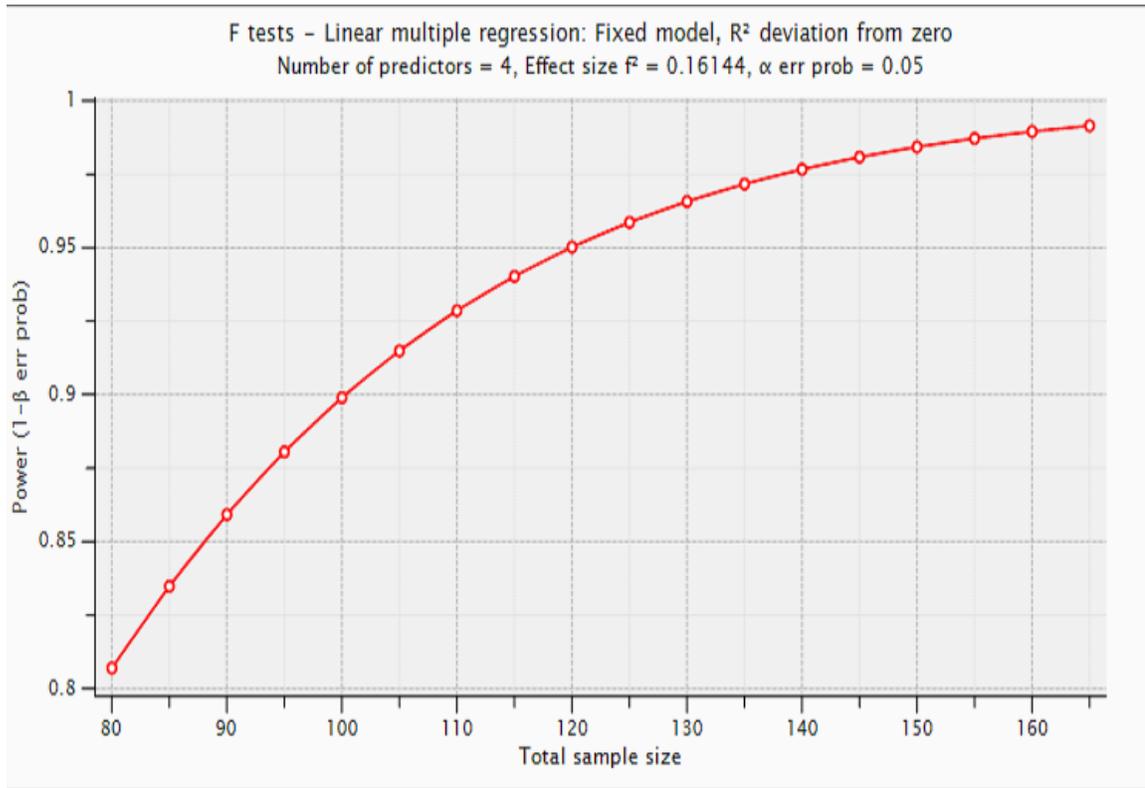


Figure 2. Power as a function of sample size.

Ethical Research

Researchers have ethical obligations to justify the validity and reliability of their research method (Sekaran & Bougie, 2013). Despite the type of the research methodology, researchers have a responsibility to address issues related with ethical dilemma throughout the research process (Ferrel et al., 2014). Also, researchers need to follow the ethical protocol when dealing with the population under study (Durand, 2013). Thus, before starting this doctoral study, I completed my training related to protecting human participants to ensure my conformity with research related ethical standards (See Appendix A). However, my research goals do not include interactions with participants.

The source of the population for this doctoral study was limited to secondary data. Thus, I secured the IRB approval number for this study that is 06-19-17-0265291. Accordingly, the forms related with IRB such as confidentiality, consent, and letter of cooperation documents did not apply. Further, researchers need to secure the vital materials and information of their work right after successful completion (Ferrel et al., 2014). Hence, storing data secured location related to this doctoral study in password-protected folder for 5 years after publication is my goal.

Data Collection Instruments

Instruments are vital in collecting primary data through observation, surveys, and interview (Barley & Moreland, 2014). The data for this doctoral study is secondary, which Morningstar staff collected beforehand for a different purpose. For this data, I did not conduct observation, surveys, and interviews. Researchers that use secondary data do not have data collecting instruments (Barley & Moreland, 2014). The two primarily

sources of collecting data are primary and secondary (Lamb et al., 2015). Primary data is a data collected primarily for the specific research (Sekaran & Bougie, 2013). Whereas, researchers use secondary data when there is data readily available not specifically intended for their research (Lamb et al., 2015). The information from secondary data, as part of the research design, is vital and readily usable by any researcher (Lamb et al., 2015).

The four data types include nominal, ordinal, interval, and ratio (Green & Salkind, 2014). Nominal data is a data that has no numerical or orderly value (Green & Salkind, 2014). Also, the scale data refers to a data with a numerical value, but without orderly value. Further, the ordinal data refers to a data that has orderly value but without the numerical value (Green & Salkind, 2014). The following Table 2 shows the types of data for the variables.

Table 2

Variables and their Scale of Measurement

List of the Variables	Nominal	Scale
Fund Class Type	Types A or C	
Portfolio Turnover		Percentage*
Fund Longevity		Number of years
Management Turnover		Numbers/ 5 years
Risk-Adjusted Return		Percentage

* Refers 0% to no fund change and 100% to all funds changed (turned over).

Quantitative researchers identify secondary data as effective in conducting statistical analysis (Garcia & Zazueta, 2015). In this doctoral study, I used mutual fund data from Morningstar and Edgar database of U.S. Security and Exchange Commission (SEC). Morningstar data consists of comprehensive and accurate mutual fund information retrieved from leading and reliable investment sources (Heuristic, 2016). Edgar database of the SEC contains mandatory filing information related to mutual funds fees, performance, asset classes, and strategy (U.S. Security and Exchange Commission, 2015).

Data Collection Technique

The primary data collection technique includes observations, questionnaires, focus groups, online surveys, tests, and personal interviews (Lamb et al., 2015). Researchers that prefer primary data benefit from the originality of the data (Fleischhacker et al., 2013). Fleischhacker et al. (2013) advised researchers to use the primary data as much as possible. The use of the secondary data is suitable and acceptable when dealing with large data sets (Fleischhacker et al., 2013). According to Lamb et al., researchers that use secondary data do not need to implement any of the data collecting techniques. Further, researchers minimize time and cost of the data collection process by using secondary data (Lin & Lui, 2015). Because data for this doctoral study only came from secondary data, I reject the use of data collection technique for this doctoral study.

The shortcoming of secondary data is that the original data might exclude important information that skew the result (Bevan et al., 2013). Also, Bevan et al. (2013)

identified that the initial researcher might missed important observations or inputs during the data collection processes. The source of the secondary data for this doctoral study is from Morningstar and Edgar, which is the data repository used by SEC. As previously indicated, an assumption of this doctoral study is that data is collected using appropriate procedures. As a quality control measure, I cross referenced the data between Morningstar, Yahoo Finance and Edgar database to verify the reliability of the secondary data.

Data Analysis

The main goal of this study is to answer the overarching question: What is the relationship between mutual fund type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016? This doctoral study included four independent variables: mutual fund type, portfolio turnover, fund longevity, and management turnover. The annual fund risk-adjusted performance (Sp) is the dependent variable. My research question is as follows: What is the relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016?

My hypothesis based upon the research question is as follows:

H_{01} : There is no significant statistical relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016.

H_{a1} : There is a significant statistical relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016.

In choosing the data analyzing technique for this doctoral study, I considered multiple regression analysis, multiple analysis of variance (MANOVA), path analysis, and factor analysis. Researchers use multiple regression analysis to analyze the relationship between two or more independents and dependent variables (Bok-Hee & SoonGohn, 2014). The relationship between two or more dependents or correlated variables is analyzed using a statistical methodology identified as MANOVA (Tonidandel & LeBreton, 2013). As an extension to multiple regression analysis, researchers use path analysis to identify the relationship between independent variables and dependent variables in a graphical (arrowed diagram) (Skorek, Song, & Dunham, 2014). Further, researchers use factor analysis to investigate the relationship between observed variables, which are not easy to measure because the pattern of similar responses (Rahn, 2016). After considering the other options, my decision was to accept a multiple regression analysis as the most appropriate for this doctoral study.

Boslaugh (2013) identified multiple regression analysis as a research technique that is vital in analyzing multivariate variables. Researchers use multiple regression analysis to identify the degree of relationship between the independent variables in predicting the dependent variable (Sekaran & Bougie, 2013). Also, Lopez-Rojas (2016) used multiple regression analysis to examine the relationship between the independent variables; the market expected return, the return of the risk-free rate, volatility of the

project, and the dependent variable; MDBs. Hence, I used the multiple regression analysis to examine the relationship between the independent variables; mutual fund type, portfolio turnover, fund longevity, and management turnover, and the dependent variable; annual fund risk-adjusted performance.

The data for analysis was retrieved from Morningstar. I transferred the information related to mutual fund type, fund turnover, fund longevity, management turnover, and the Sharpe ratio, from prospectus to Excel file before starting the analysis in SPSS. The multiple linear regression analysis is most appropriate when examining the relationship between multiple independent variables and a dependent variable (Bok-Hee & SoonGohn, 2014). Because the goal of this doctoral study was to examine the relationship between multiple independent and dependent variables, the appropriate decision was to use a multiple regression model.

The analysis included ascertaining the key assumptions of outliers, linearity, normality, multicollinearity, homoscedasticity, and independence of error (Broberg, Salminen, & Kyttä, 2013). The violation of the key assumptions would result in Type I or Type II errors (Green & Salkind, 2014). Thus, I run bootstrapping in SPSS to eliminate or minimize the violations of assumptions.

Outliers are data points that considerably diverge from the rest of observations across the regression line (Yin, Wang, & Yang, 2014). Outlier data point refers to either the extreme value of x, the extreme value of y, extreme value of x and y, or a distant value from all the observations (Yin et al., 2014). An outlier that profoundly influences the regression line is influential point (Yin et al., 2014). Researchers use scatterplots to

identify outliers (Schubert, Zimek, & Kriegel, 2014). Hence, I used a scatterplot to test the existence of outliers.

The linearity assumption refers to the linear relationship between the independent and dependent variables when using multiple linear regression for analysis (Green & Salkind, 2014). Yang, Novick, and LeBlond (2015) stated that the linearity assumption might never happen in practice. Yang et al. also clarified that minor deviations from the line would not affect multiple regression procedures. One of the ways to validate the linearity assumption in multiple linear regression analysis is to use scatterplot (Nguyen, Schwartz, & Dockery, 2014). Hence, I used the scatterplot to validate the linearity of the distribution of residuals of this doctoral study.

The multivariate normality assumption in multiple linear regression refers to the normal distribution of residuals that are the predicted minus the observed values (Ryan, 2016). Ryan stated that normal distribution assumption is vital to validate the result of multiple linear regression analysis. One way to assess the normality assumption is to use review the normal probability-probability plot (normal p-p plot) (Green & Salkind, 2014). Similarly, I assessed the normality of the standard residuals using the normal p-p plot.

Multicollinearity refers to two or more independent variables of a regression model that are highly correlated, thus, creating a situation hard to identify each variables' effect towards the dependent variable (Zahari, Ramli, & Mokhtar, 2014). Using SPSS, the multicollinearity correlation between two independent variables, variance inflation factor greater than five ($VIF > 5$) is referred highly correlated (Green & Salkind, 2014).

The assumption in multiple regression analysis is no or little multicollinearity (Zahari et al., 2014). According to Zahari et al. (2014), the extreme case of multicollinearity bias findings by shifting the regression line upward or downward. Also, the Pearson correlation coefficient is one of the tools researchers use to identify multicollinearity (Hannigan & Lynch, 2013). Hannigan and Lynch (2013) stated that the Pearson correlation coefficient result among all the independent variables should be smaller than .08. Hence, I used the Pearson correlation coefficient to identify the existence of multicollinearity in this doctoral study.

Homoscedasticity refers to the variation of standardized residuals (errors) across the line of regression to be the same (Bamel et al., 2013). Whereas, heteroscedasticity indicates the variation of errors along the regression line to differ from different values (Rhan, 2016). A significant mark of heteroscedasticity can distort the findings through the possible increase in Type I error (Bamel et al., 2013). The assumption of homoscedasticity is vital in validating my analysis. One way to validate the homoscedasticity assumption is by visually looking at the errors in the scatterplot of regression (Nguyen et al., 2014). Hence, I referred to the standardized residuals value in the scatterplot of the regression line to validate the homoscedastic assumption.

Autocorrelation refers to the interdependence of residuals among themselves (Green & Salkind, 2014). The assumption in multiple linear regression analysis is no or little autocorrelation (Broberg et al., 2013). Broberg et al. stated that autocorrelation exists when the residuals, observed value or $y(x+1)$ and average predicted value or $y(x)$ of the dependent variables, are not independent of each other. One of the tests

researchers use to detect autocorrelation of residuals is Durbin-Watson test (Bercu et al., 2014). I implemented the same procedures to test the existence of autocorrelation for this doctoral study.

For this doctoral study, the process of hypothesis testing included population specification, formulation of the null and alternative hypothesis, a specification of the level of significance, and construction of the rejection region (Rahn, 2016). After, identifying the population of interest, I formulated the null and alternative hypothesis for this doctoral study. The level of significance in SPSS was ($\alpha=0.05$) (Green & Salkind, 2014).

The statistical package for social science (SPSS) version 23.0 is an appropriate tool for my analysis. SPSS software delivers a data entry platform that translates numerical and non-numerical data into usable statistical analyzing data (Green & Salkind, 2014). I referred to the sample B , β , F , R^2 , *Adjusted R^2* , *Sig (p)* and t results when analyzing the data using SPSS. The following discussion refers to the parameters that result from SPSS.

- B . B is the unstandardized coefficient used in predicting the equation (Green & Salkind, 2014).
- β . β is the standardized coefficient or the slop of X used in predicting the equation (Green & Salkind, 2014).
- F . The F statistic measure the model's overall predictability (Green & Salkind, 2014).

- R^2 . R^2 is a numerical correlational indicator of how much the predictor variables influence the dependent variable (Green & Salkind, 2014).
- *Adjusted R^2* . Adjusted R^2 based upon the sample size of the study (Green & Salkind, 2014).
- *Sig (p)*. Sig or p-value refers to significance of the probability value for a statistical model if the null hypothesis is true (Green & Salkind, 2014).
- t . The t-value measures the difference of the sample data relative to the population (Ott & Longnecker, 2015).

The data for SPSS included Sharpe ratio. Researchers use Sharpe ratio to identify funds' annual risk-adjusted rate (Ayinde et al., 2015). The Sharpe ratio is computed as the ratio of the excess return of the fund divided by the standard deviation (Tan, 2015). The mathematical computation of Sharpe ratio and Treynor ratio are similar. The main difference is that the Sharpe ratio uses the total risk, whereas the Treynor ratio uses the market (systematic) risk (Barratt & Lenton, 2014). Thus, I used the Sharpe ratio to help me identify funds' risk premium per total risk. To compute the Sharpe ratio, the following formula is used:

$$S_p = (R_p - R_f) / \sigma_p$$

Where: S_p = Sharpe Ratio

R_p = the average rate of return for a fund.

R_f = the average risk-free return.

σ_p = the standard deviation of the fund.

The Sharpe ratio is one of the statistical data analysis methods that researchers use to evaluate fund performance (Tan, 2015). Tan stated that researchers use Sharpe ratio to evaluate fund managers' performance. A higher Sharpe ratio would indicate a better fund performance. The Sharpe ratio, however, is a function of R_p , R_f , and σ_p . The R_p is the average rate of return of the portfolio, for this study it included the years 2010 to 2015. The R_f is the risk free average rate of return. The funds' standard deviation (σ_p) reflects the funds' total risk (Tan, 2015). In this study, I used the already computed Sharpe ratio from the funds' prospectus. The formulas to compute R_p and σ_p are as follows:

$$R_p = R_1W_1 + R_2W_2 + \dots R_iW_i$$

Where: R_p = the fund expected return.

R_i = the return of an asset.

W_i = the weighted average of the asset.

$$\sigma_p = \sqrt{\sigma_p^2}$$

Where: σ_p = the standard deviation of the fund.

σ_p^2 = the variance of the fund.

Researchers use descriptive statistics to identify important details about the sample's mean, standard deviation, percentage and frequency (Kanchan & Krishan, 2013). Similarly, Acharya, Davydenko, and Strebulaev (2012) stated that researchers use descriptive statistics in multiple regression analysis to compute vital details about the sample. Hence, I used descriptive statistics to calculate the samples' mean and standard deviation for the period under study.

Regression analysis is an acceptable technique to identify the correlation between dependent and independent variables (Green & Salkind, 2014). Tan (2015) implemented multiple regression analysis to determine the relationship between the independent and dependent variables. Thus, I created a multivariate regression model for this doctoral study to identify the relationship between mutual fund types, portfolio turnover, fund longevity, and management turnover, and the annual fund risk-adjusted performance at 0.05 level of significance.

Study Validity

In this doctoral quantitative correlational study, I examined the relationship between mutual fund types, portfolio turnover, fund longevity, and management turnover, and the annual fund risk-adjusted performance. This doctoral study is a nonexperimental design; threats to internal validity does not apply. However, the potential threat to validate the statistical conclusion is a concern.

Threats to statistical conclusion validity. The threats to validate the statistical conclusion refers to conditions, Type I and Type II errors that inflate the findings from statistical analysis (Acharya & Muddapur, 2014). Type I error refers to rejecting a factually true null hypothesis, and Type II error refers to accepting a factually false null hypothesis (Green & Salkind, 2014). Hence, to validate the conclusion of this doctoral study, I referred to instrumental reliability, assumptions related to data, and sample size.

Reliability of the instrument. In this doctoral study, secondary data is the exclusive source of data. The use of secondary data to conduct statistical analysis is

acceptable for quantitative research (Garcia & Zarzuela, 2015). Using internal consistency reliability checks helped me validate the reliability of the data.

Data assumptions. The data assumptions are key assumptions that pertain to this doctoral study. The key assumptions are outliers, linearity, normality, multicollinearity, homoscedasticity, and independence of error (Broberg, Salminen, & Kyttä, 2013). The violation of the key assumptions may result in Type I or Type II errors (Green & Salkind, 2014). Thus, to eliminate or minimize the violations of assumptions, I run bootstrapping in SPSS.

Transition and Summary

Section 2 part of this doctoral study includes the detailed justification for the use of quantitative correlational research methodological design to validate the analysis. In this section, I described my role as a researcher, identified and justified the methodological design of this doctoral study. Also, included in this section is my description of the population and sampling method, as well an explanation of the data collection instrument and processes. Further, section 2 includes pre-data analyzing procedures, and post data interpreting assumptions to validate the results. Section 3 of this doctoral study includes data analysis, exhibition, and interpretation of the findings from data analysis, practical applications of the findings, and opportunities for further research.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this quantitative correlational study was to analyze the relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance. The study included four independent variables: mutual fund type, portfolio turnover, fund longevity, and management turnover. The dependent variable was annual fund risk-adjusted performance (Sp) compared to the benchmark performance of S&P 500. The model showed that at $F(4,83) = 3.581, p = 0.010, R^2 = 0.147$, mutual fund class type, and portfolio turnover significantly predicted risk-adjusted performance. Hence, the null hypothesis was rejected and the alternative hypothesis was accepted.

Presentation of the Findings

In this presentation of the findings, I discussed the results related to testing the assumptions, presentation result of descriptive statistics, presentation results of inferential statistics, provision of a theoretical conversation pertaining to the findings, and conclude with a summary. As the sample was from a relatively large number of population, there was no risk associated with duplicating when selecting sample from the population. The employment of bootstrapping with 1,000 samples was only appropriate in case of violation of the assumptions. In this doctoral study, to minimize the impact of the outliers that can possibly influence the outcome of the study, the data was run through bootstrapping. Hence, bootstrapping 95% confidence interval was applied where appropriate.

Test of Assumptions

The assumptions related to multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals was evaluated. The result showed that none of the assumptions were violated. Hence, bootstrapping, using 1,000 samples was not applicable.

Multicollinearity. Multicollinearity was evaluated by viewing the correlation coefficients among the predictor variables. All bivariate correlation coefficients among the predictor were small; therefore, violation of the assumption of multicollinearity was not evident. The general rule for multicollinearity is variance inflation factor greater than five ($VIF < 5$) for all variables. Since the $VIF < 1.2$ for all the variables, multicollinearity was not evident. Table 3 shows coefficient correlations, and Table 4 shows VIF collinearity statistics.

Table 3

Correlation Coefficients Among Study Predictor Variables

Variables	Fund Class	Portfolio	Fund Longevity	Management
Fund Class Type	1.000	-0.042	0.347	0.041
Portfolio Turnover	-0.042	1.000	-0.102	0.148
Fund Longevity	0.347	-0.102	1.000	0.043
Management	0.041	0.148	0.043	1.000

Note. $N = 88$.

Table 4

Collinearity Statistics

Variables	Collinearity Statistics	
	Tolerance	VIF
Fund Class Type	0.879	1.138
Portfolio Turnover	0.966	1.035
Fund Longevity	0.870	1.149
Management Turnover	0.974	1.027

Note. $N = 88$.

Outliers, normality, linearity, homoscedasticity, and independence of residuals. Outliers, normality, linearity, homoscedasticity, and independence of residuals were evaluated by examining box plots, the normal probability plot (P-P) of the regression standardized residuals, and the scatterplot of the standardized residuals. Some data were removed from the analysis; however, there were still violations of normality. Therefore, 1,000 bootstrap samples were computed and 95% CIs provided where appropriate. Figure 3 shows the normal probability plot (P-P) of the standardized residuals. The failure of the residuals to lie in a straight line against the predicted value supports the tenability of the normality assumption violation. Figure 4 shows the scatterplot of the standard residuals. The residuals lie higher on one side (left side) than the other (right side), suggesting decreasing variations across the residuals; a violation of the homoscedasticity assumption. Hence, the run of 1,000 bootstrap sample was appropriate to minimize any impact on the statistical result.

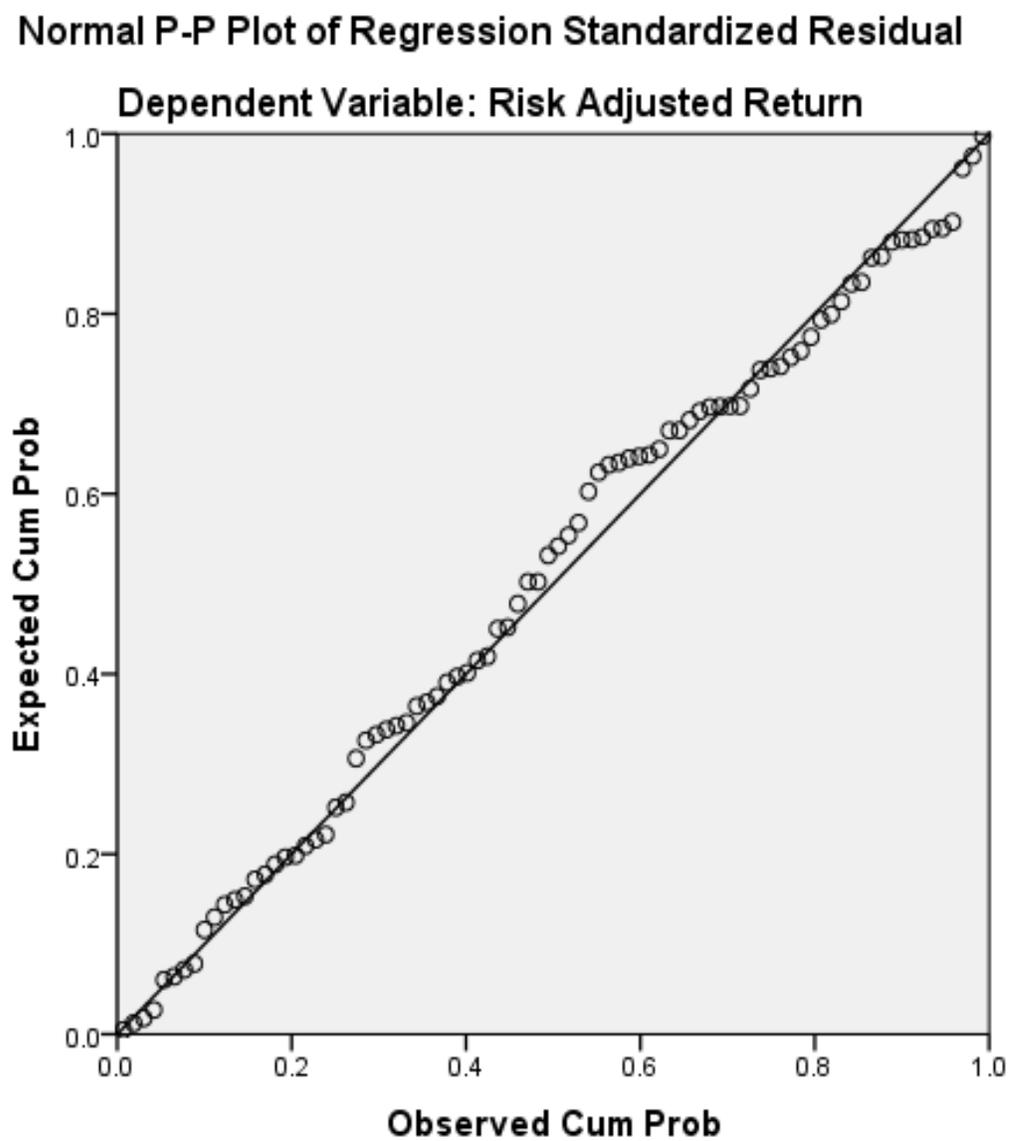


Figure 3. Normal probability plot (P-P) of the standardized residuals.

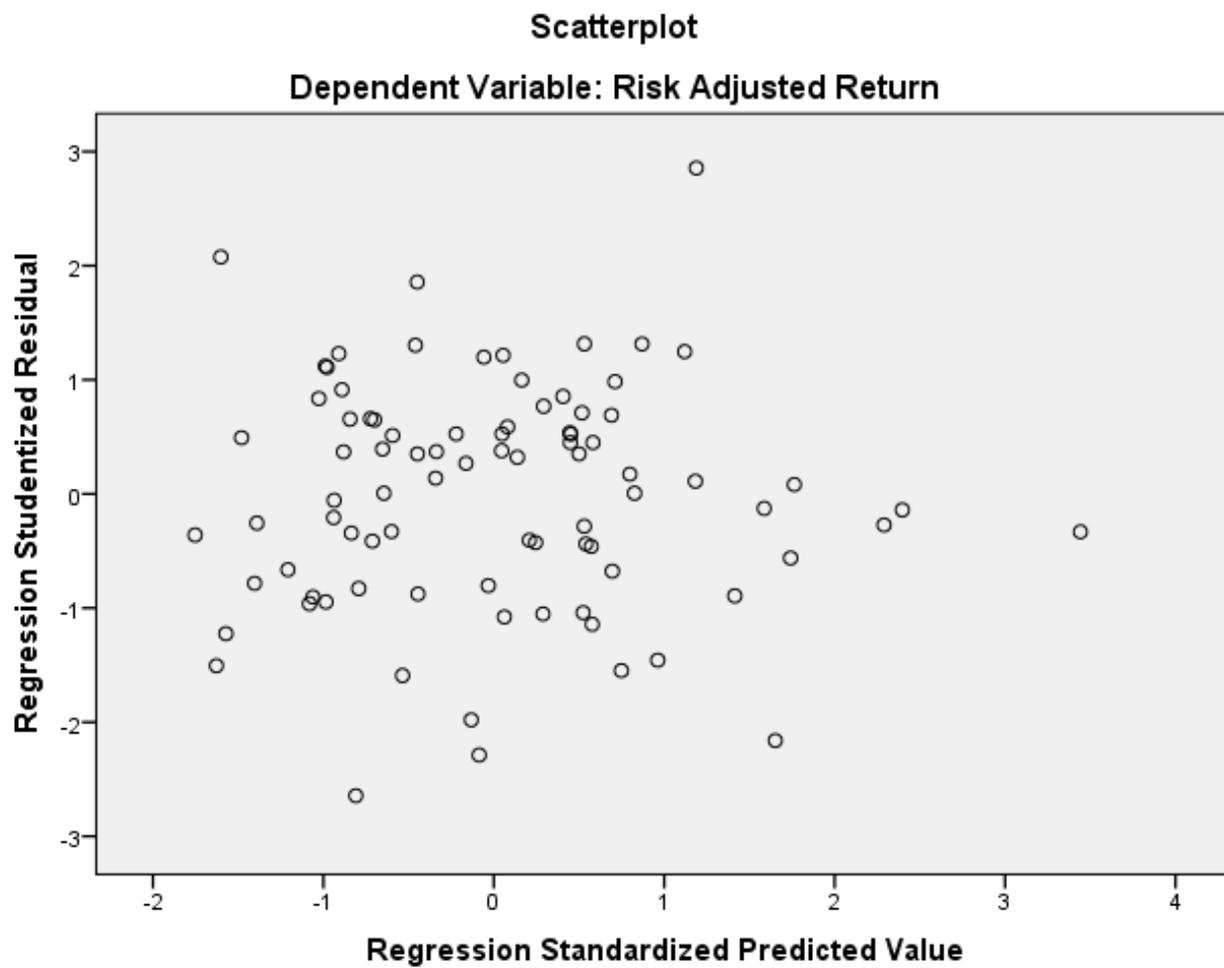


Figure 4. Scatterplot of the standard residuals.

Descriptive Statistics

In total, I selected 88 U.S equity mutual funds. Seven outliers from fund longevity were eliminated due to their impact to results. Table 5 shows the descriptive statistical value of the study variables.

Table 5

Mean and Standard Deviations for Quantitative Study Variables

	<i>M</i>	<i>SD</i>	<i>Bootstrap 95% CIs</i>	
			<i>M</i>	<i>SD</i>
Risk-adjusted Return	1.0983	.16513	[1.0609, 1.1334]	[.12983, .19389]
Fund Class Type	.6023	.49223	[.5000, .7045]	[.45886, .50274]
Portfolio Turnover	52.2530	61.15664	[40.6724, 65.6183]	[28.68849, 86.62595]
Fund Longevity	21.966	16.6702	[18.592, 25.397]	[11.5130, 20.7410]
Management Turnover	.24720	.230333	[.20046, .29419]	[.202231, .254887]

Note: $N=88$

Inferential Results

Standard multiple linear regression, $\alpha = .05$ (two-tailed), was used to examine the relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016. The independent variables were mutual fund class type, portfolio turnover, fund longevity, and management turnover. The dependent variable was annual fund risk-adjusted performance for the 5-year period ending 2016. The null hypothesis was that no significant statistical relationship exists between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016. The alternative hypothesis was that a

significant statistical relationship exists between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016. Preliminary analyses were conducted to assess whether the assumption of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals were met; violations of the assumptions were observed.

The model as a whole was able to significantly predict annual fund risk-adjusted performance for the 5-year period ending 2016, $F(4, 83) = 3.581, p = .01, R^2 = .147$. The $R^2 (.147)$ value indicates that approximately 14.70% of variation in annual fund risk-adjusted performance is accounted for by the linear combination of the predictor variables (mutual fund class type, portfolio turnover, fund longevity, and management turnover). In the final model, mutual fund class type and portfolio turnover were statistically significant with mutual fund class type ($\beta = .249, t = 2.302, p = .024$) accounting for a higher contribution to the model than portfolio turnover ($\beta = .238, t = 2.312, p = .023$). Mutual fund longevity and management turnover did not explain any significant variation to annual fund risk-adjusted performance. The final predictive equation was as follows:

$$\begin{aligned} \text{Risk-adjusted Performance} = & 0.995 + .084 (\text{Mutual fund class type}) + .001 \\ & (\text{Portfolio turnover}) + .001 (\text{Fund longevity}) - .041 \\ & (\text{Management Turnover}) \end{aligned}$$

Fund class type. The positive slope for fund class type (.084) as a predictor of risk-adjusted performance indicated there was about a .084 (8.4%) increase in risk-adjusted return when the fund class type is A instead of C. The squared, semipartial coefficient (sr^2) that estimated how much variance in risk-adjusted performance was uniquely to mutual fund class type was .081, indicating that 8.1% of the variance in risk-adjusted performance is uniquely accounted for by mutual fund class type, when portfolio turnover, fund longevity, and management turnover are controlled.

Portfolio Turnover. Table 6 depicts the regression summary for the predictor variables. The positive slope for portfolio turnover (.001) as a predictor of risk-adjusted performance indicated there was about .001 increase in risk-adjusted performance for each 1% increase in portfolio turnover. Thus, a 1% change (switch) of fund would result in 0.1% increase in annual risk-adjusted performance. In other words, annual risk-adjusted performance increased with the increase in portfolio turnover. The squared semipartial coefficient (sr^2) that estimated how much variance in risk-adjusted performance was uniquely to portfolio turnover was .042, indicating that 4.2% of the variance in risk-adjusted performance is uniquely accounted for by portfolio turnover, when mutual fund class type, fund longevity, and management turnover are controlled.

Table 6
Regression Analysis Summary for Predictor Variables

Variables	<i>B</i>	<i>SE B</i>	β	<i>t</i>	p^5	<i>B</i> 95% ⁶ Bootstrap CI
Fund Class Type	.084	.036	.249	2.302	.024	[.010, .157]
Portfolio Turnover	.001	.000	.238	2.312	.023	[.000, .001]
Fund Longevity	.001	.001	.1381	1.267	.209	[.000, .003]
Management Turnover	- .041	.074	-.057	-.557	.579	[-.206, .110]

Note: $N = 88$

Analysis summary. The purpose of this study was to examine the relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016. Assumptions surrounding multiple regressions were assessed with no serious violations noted. The model as a whole was able to significantly predict annual fund risk-adjusted performance for the 5-year period ending 2016, $F(4, 83) = 3.581$, $p = .01$, $R^2 = .147$. Both mutual fund class type and portfolio turnover provided useful predictive information about annual fund risk-adjusted performance for the 5-year period ending 2016. The conclusion from this analysis is that mutual fund class type and portfolio turnover are significantly associated with annual fund risk-adjusted performance, even when fund longevity and management turnover are held constant.

Theoretical discussion of findings. My findings from this study confirmed with findings of other researchers including that of Markowitz (1952). For example, Berk and DeMarzo (2013) identified that investors could minimize the risk of their portfolio by

allocating their funds into diversified asset classes. Similarly, Junarsin (2013) identified that the concept of diversification of stocks minimizes the risk of a portfolio in the market. Franco (2014) concluded in this research that the MPT was valid for his investigation of standard deviation optimization using the theory of MPT. Further, Franco identified that each financial asset's average return moves in opposite directions if there is a positive and negative change in the stock market.

The findings from this study extended and supported Markowitz's (1952) MPT. The foundation of MPT is the expected return and variances of assets in which mutual fund managers construct a portfolio along the efficient frontier based on their customers' risk preference (Berk & DeMazo, 2013). Karoui and Meier (2015) based MPT as an established fact that about the negative correlation between stock returns and the subsequent return of the standard deviation. Hence, for a portfolio investment to achieve maximum risk-adjusted return, fund managers need to select negatively correlated diversified financial assets (Nyberg, 2013).

In line with the findings of this study that indicated a significant relationship between fund class type and fund risk-adjusted performance, Sakr's et al. (2014) findings indicated that the large-capitalization A-share mutual funds outperformed the mid- and small-capitalization mutual funds in the year 2015. Similarly, TripathiRao et al. (2012) identified that the high return-seeking investors gain or lose more than those investors who seek less return. Further, Franco (2014) identified the risk of A-share, large capitalization income, and income and growth funds remain consistent during a recessionary and nonrecessionary period.

Similar to the findings in this study, which indicated a significant relationship between portfolio turnover and fund risk-adjusted performance, Sundar and Irisappane (2015) found the skills that fund managers needed in selecting the most efficient stock to maximize risk-adjusted performance. In addition, active portfolio management allowed fund managers to develop an opportunity to minimize losses in terms of market instability (Zilinskij, 2015). Further, Hafer's (2015) finding showed similar return to the long-term return of S&P 500 by buying the asset class that was up the previous month and shedding the one that was down.

The findings of this study that indicated no significant relationship between fund longevity and fund risk-adjusted performance was supported. Huang and Wang's (2015) empirical findings that showed the shifts explained changes in the return volatilities of equity mutual funds in buy-and-hold portfolio volatility. Similarly, Ando and Malloy's (2012) finding revealed a reduction in ecosystem uncertainty and generated a 15% higher return when applying MPT to evaluate alternatives. Ando and Malloy's proposal was a decomposition of fund return standard deviation using holdings-based measures in the second half of the year to distinguish between risk changes that were because of managers' trades and those that resulted from holding the portfolio.

Furthermore, the finding of this study, which indicated no significant relationship between management turnover and fund risk-adjusted performance, aligned with the findings of Porter and Trifts (2014) in which experienced managers had underperformed the market by almost the same as their expense ratio. Similarly, Barron and Ni (2013) identified the effect of Morningstar ratings and not the mutual fund managers' turnover

that contributed to the increase of fund performance. In addition, Ünal and Tan (2015) identified no significant relationship between management timing ability and fund performance. On the contrary, Marekwica and Steininger (2014) findings depicted that lower level of wealth under investment increased the transaction cost instead of management turnover.

Applications to Professional Practice

In this correlational study model, I identified two significant predictors; fund class type and portfolio turnover. Thus, understanding the predictor variables, fund class type and portfolio turnover in relation to the risk-adjusted fund performance can result in efficient fund management. Mutual fund managers can better predict mutual fund portfolios returns using information from this study to retain and grow their funds under management that ensuring customer expectations. Based on the findings from this doctoral study, I learned that Class A mutual funds, despite upfront load fee, perform better within five years period than Class C mutual funds. If mutual fund managers fail to identify which funds to offer to investors, investors will shift or seek alternative investments (Sun & Wang, 2013).

Mutual fund managers need to strengthen risk management strategies through the transition risks lever and pursue performance sustainability (Lee, 2013). The understanding of the predictor variable portfolio turnover in relation to the risk-adjusted performance may help mutual fund managers to manage risk efficiently. An actively managed portfolio implies frequent portfolio rebalancing (Drenovak & Rankovic, 2014).

Hence, mutual fund managers need to continually rebalance the funds to secure a better return on the portfolios under management.

Implications for Social Change

The implications for positive social change include the potential to benefit individual investors and families by improving customer satisfaction and investment returns. In this study, I provided a significant predictive model that can help investors better predict their risk and return. Thus, understanding the predictor variables, fund class type and portfolio turnover in relation to risk-adjusted fund performance can result in investors better able to predict the return on their investment. Assuming the acceptable risk-return tradeoff in finance, an investor with a focus on return would invest in highly risky assets to gain higher performance and vice-versa (Nyberg, 2013). Based on the findings from this doctoral study, individual investors and families can better predictably understand the return on their retirement (IRA) or investment accounts.

Society can benefit from the results of this doctoral study because mutual fund managers can better predict the return of the funds under management based on the information from the study, which may lead to higher societal satisfaction. As Baby Boomers start to retire and the availability of online investing is accessible to individual investors, the result of this study can educate investors about mitigating risk in making investment related decisions. Mutual funds are the primary source of investing for retirement (Franco, 2014). Active portfolio management allowed fund managers to develop an opportunity to minimize losses regarding market instability (Zilinskij, 2015). Thus, a better understanding of the predictor portfolio turnover and annual risk-adjusted

mutual fund portfolio performance could add stability by allowing individuals to better predict their post-retirement income.

Recommendations for Action

Mutual fund risk-adjusted performance is the key indicator in evaluating fund managers' performance (Ying-Fen & Hai-Ching, 2017). The findings from this doctoral study indicated the validity of MPT, and I recommend fund managers to use MPT when drawing strategies related to portfolio management. Also, the finding indicated that fund class type and portfolio turnover were statistically significant in increasing annual fund risk-adjusted performance. Based on the findings of these variables, my recommendation for fund managers includes (a) equity valuation before recommendation, (b) efficient allocation of equity assets, and (c) optimization of the portfolio to maximize return. Equity valuation refers to identifying the risk of an equity fund and its return (Fama, 1970). Hence, fund managers need to evaluate the risk and return associated with each A-share, and C-share mutual funds along with their customers' risk tolerance before recommendation.

The efficient allocation of equity assets refers to the distribution of different stocks in a portfolio to maximize the efficiency of a portfolio (Berk & DeMazo, 2013). Based on the findings from this doctoral study, I recommend mutual fund managers draw strategies that continually identify and revise each stock's risk and return to maximize portfolio efficiency. In order for a portfolio investment to achieve maximum efficiency, fund managers need to select negatively correlated assets (Nyberg, 2013). The optimization of a portfolio's return refers to the frequent rebalancing and turning over of

stocks (Michelfelder, 2015). Based on the findings from this doctoral study, I recommend mutual fund managers optimize their portfolio through rebalancing and tuning the stocks in their portfolio. Hence, in drawing strategies related to portfolio management, fund managers need to balance between assets' risk minimization and return maximization.

The results of this doctoral study are vital to bank leaders, mutual fund managers, financial advisors, scholars, and practitioners. Bank leaders may use the results from this study to align their customers' expected return and their level of risk, which would reduce the customers shift to other investments. Mutual fund managers may use the results from this study to construct an efficient portfolio that optimizes return with the least possible risk to minimize loss of investment. Practitioners and financial advisors may use the result of this doctoral study in order to determine the type of mutual funds to recommend for their clients. Scholars may use the findings from this doctoral study as a reference to further research on those variables that influence the annual funds' risk-adjusted performance. In order to disseminate the findings from this doctoral study, I intend to publish the findings from this doctoral study in the ProQuest/UMI dissertation database, discuss the findings in conferences, and pursue publication in academic journals.

Recommendations for Further Research

In this doctoral study, I focused my assessment on U.S. equities to identify the relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending in 2016. The recommendation for further research includes identifying the

relationship of the variables by expanding into international equity funds. Also, I would recommend for further research to identify the relationship between the variables by increasing the number of participative U.S. equity funds' class types. Further, I would recommend for further research on the use of different techniques to analyze performance and use a shorter or higher number of years for data analysis.

Furthermore, this doctoral study has limitations related to the utilization of the secondary data. I have no means to verify the information from the secondary data; however, I crosschecked the data with another secondary data to minimize the impact of the limitation. Thus, I would recommend for further research from an international mutual fund equities data and source. Also, the past relationship might not reflect future performance or relationship of the variables, and the correlation does not prove causality (Arrawaita, Misra, & Dawar, 2015). Hence, I recommend for further research in a future period to determine if findings from this doctoral research extend over time.

Reflections

My experience with this DBA Doctoral Study process at Walden was both challenging and at the same time rewarding. The goal of this doctoral study was to gain a better understanding of mutual fund managers' action and their impacts on performance. My preconceived idea was that most of the factors (portfolio turnover, fund longevity, and management turnover) would impact the performance of mutual funds. Also, due to my experience and practices in the financial institutions, I assumed mutual fund type A-share would outperform C-share after 7 years. The findings from this doctoral study, however, showed a mixed result. The variable, Portfolio turnover was significant as

expected. Whereas, mutual fund longevity and management turnover were not significant, which missed expectation. The significance and magnitude of the result related to mutual fund type exceeded expectation.

Furthermore, there was little difficulty in identifying U.S. equity mutual funds either A-shares or C-shares, that were in the market for more than 5 years. Thus, I had to toggle between Yahoo Finance, Morningstar, and the SEC databases to collect the needed mutual funds. Despite the more than 7000 mutual funds in the financial market, U.S. based equity mutual funds of 5 years or more are far smaller. The collection of the sample mutual funds took more than 3 months. Once I identified the sample mutual funds, I computed the results several times using percentages, ratios, and decimals. Though the processes and task of this doctoral study were arduous, yet the process was cost effective and appropriate. Hence, I was able to get the required result with acceptable significance and no violation of assumption.

Summary and Conclusion

The relationship between mutual fund class type, portfolio turnover, fund longevity, management turnover, and U.S. equity mutual funds' annual fund risk-adjusted performance was analyzed for the 5-year period ending in 2016. The independent variables were mutual fund class type, portfolio turnover, fund longevity, and management turnover. The dependent variable was annual fund risk-adjusted performance for the 5-year period ending 2016. The null hypothesis was that no significant statistical relationship exists between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted

performance for the 5-year period ending 2016. The alternative hypothesis was that a significant statistical relationship exists between mutual fund class type, portfolio turnover, fund longevity, management turnover, and annual fund risk-adjusted performance for the 5-year period ending 2016. During this 5-year period, the U.S. financial market did not face an abnormal recession or inflation. Also, the annual risk-adjusted performance for all the 88 U.S. equity mutual funds was positive for the 5 consecutive years ending 2016.

The model as a whole was able to significantly predict annual fund risk-adjusted performance for the 5-year period ending 2016, $F(4, 83) = 3.581, p = .043, R^2 = .147$. The $R^2 = .147$ value indicates that approximately 14.7 % of the variation in annual fund risk-adjusted performance is accounted for by the linear combination of the predictor variables (mutual fund class type, portfolio turnover, fund longevity, and management turnover). In the final model, mutual fund class type and portfolio turnover were statistically significant with mutual fund class type ($t = 2.302, p < .05$) accounting for a higher contribution to the model than portfolio turnover ($t = 2.312, p < .05$). Mutual fund longevity and management turnover did not explain any significant variation to annual fund risk-adjusted performance.

Both mutual fund class type and portfolio turnover provide useful predictive information about annual fund risk-adjusted performance for the 5-year period ending 2016. The annual risk-adjusted performance increase by .84% (.084) when the fund class type is 'A' instead of 'C.' Also, a 1% change (switch) of a fund would result in .01% (.001) increase in annual risk-adjusted performance. The squared semi-partial coefficient

(sr^2) indicated that 8.1% of the variance in risk-adjusted performance was unique to mutual fund type, and 4.2% of the variance in risk-adjusted performance is uniquely accounted for by portfolio turnover, when mutual fund class type, fund longevity, and management turnover are controlled. Hence, mutual fund class type and portfolio turnover are significantly associated with annual fund risk-adjusted performance, even when fund longevity and management turnover are held constant.

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Appendix A: Training Certificate

