

Name: Buthaina Rashed Al Saidi

Program: MSc Finance

Student Number: 23060357

Supervisor: Dr. Ioannis Petrakis

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The Impact of Investment Allocation on The Financial Performance of Listed Insurance Companies in Qatar.

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at the

University of Northumbria at Newcastle

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Abstract

In today's evolving financial environment, coupled with the growing focus on Qatar's insurance sector, the investment allocation has a crucial role in shaping the financial performance of Insurance companies. The current study investigates the impact of investment allocation on the economic performance of insurance companies listed on the Qatar Stock Exchange. The empirical analysis measures financial performance using ROA and examines the influence of investment in equities, bonds, fixed deposits, managed funds, and real estate as a critical determinant in the main allocation model. Moreover, subgroup models were created to analyze each asset investment and other related factors across five subgroup models. The analysis is based on data retrieved from five listed Qatari insurance companies from 2019 to 2023. The study adopts panel data regression and robust econometric techniques, including Fixed Effects and Random Effects models. The findings suggest that investments in fixed deposits and real estate significantly enhance the profitability of insurance companies, while investments in bonds and managed funds have a positive impact, albeit statistically insignificant. In contrast, the results indicate that investments in equities significantly reduced the financial performance of Qatari insurance companies during the study period.

Keywords: Insurance Sector, Investment, Asset Allocation, Qatar.

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List of Abbreviations

ROA: Return on Assets
ROI: Return on Investments
EQ: Equities
BO: Bonds
FD: Fixed Deposits
MF: Managed Funds
RE: Real Estate
INT_RAT : QCB Deposit Interest Rate
INT_INC: Interest Income
DIV_INC: Dividends Income
REN_INC: Rental Income from Investment Properties
GWP: Gross Written Premiums – Insurance Size
NII: Net Investment Income
OOI: Other Operating Inco
QIC: Qatar Insurance Company
DOH: Doha Insurance Group
QGR: Qatar General Insurance & Reinsurance Company
AKH: Al Khaleej Takaful Insurance
QII: Qatar Islamic Insurance Company
QSE: Qatar Stock Exchange
QCB: Qatar Central Bank
FVTPL: Fair Value Through Profit or Loss
FVTOCI: Fair Value Through Other Comprehensive Income
VIF: Variance Inflation Factor
HHI: Herfindahl – Hirschman Index
FE model: Fixed Effect model
RE model: Random Effect model

CHAPTER ONE: INTRODUCTION

1. Study Overview

This study examines the impact of investment allocation on the financial performance of insurance companies listed on the Qatar Stock Exchange from 2019 to 2023. The research highlights how these allocations-including investment in equities, fixed deposits, managed funds, real estate, and bonds -affect the companies' profitability measures by Return on Assets. Chapter one of the study will provide the background of the study, which discusses the link between Investment allocation and financial performance and the regulation shaping insurance firms in Qatar. Moreover, it will conclude with the research problem.

The term "investing" can refer to a wide range of activities, all of which aim to utilize funds to increase the investor's wealth during a specific time frame. In addition, it reflects the commitment of present resources, expecting to receive future resources that will reimburse the investors for their time commitment. ([Levišauskait, 2010](#)). Another alternative definition of investment is the change in capital stock over time. Therefore, investment is more accurately described as a flow than a stock term. This means capital can only be measured at a specific moment, while investment is quantified over time. ([Trygve, 2006](#)).

The financial sector is essential for the economic development of every nation, including the insurance firms, which play a crucial role in this sector. These firms provide risk mitigation services and contribute to the stability and expansion of financial markets via their investment activities ([Nyora, 2015](#)). The insurance companies work in a financial cycle. Accordingly, the insured remits a specified amount to the insurance firms, known as a premium, to obtain insurance coverage. On the other hand, this amount supports investors during calamity by providing financial rewards in the event of a covered occurrence ([Harrington et al., 2013](#)). Therefore, insurance firms must effectively manage their collected premiums by investing within the regulatory framework. In Qatar, the insurance companies follow Qatar Central Bank (QCB) regulations. The Qatar Stock

Exchange (QSE) gathers several insurance companies to maximize their investment portfolios to improve their financial performance ([Qatar Central Bank, 2024](#)).

2. Study Context

Understanding the impact of investment allocation on financial performance requires a clear knowledge of the concepts behind the relationships. Therefore, exploring the nature of portfolios, the methods used to measure financial performance, and the regulatory framework controlling Qatari insurance companies is essential.

2.1 Investment Portfolio

The financial strategies are implemented based on an investment portfolio that allocates several assets to achieve financial goals. Accordingly, three fundamental requirements motivate the investment decision: income, capital preservation, and capital appreciation. Investments intended to generate income typically seek quick returns. The objective of capital preservation is to protect the initial value of funds by minimizing risk so they can be accessed in the future without losing their purchasing power and, thus, should grow consistently with inflation ([Jappelli & Padula, 2013](#)). In contrast, capital appreciation investments are created to maximize value over time to generate a positive return after taxes and inflation. These investments usually include a certain degree of risk to achieve the target return. ([Foresman, 2021](#)).

The three objectives' goals can be satisfied using an investment portfolio, which refers to a combined set of several assets with different properties of each in return and risk ([Drobetz, 2005](#)). A well-diversified portfolio contains a variety of assets that generate income, such as dividend-paying equities and bonds, to provide consistent income. Additionally, it includes assets designed to preserve capital, for instance, money market instruments and high-quality bonds, which provide protection and stability of the principal amount ([Koumou, 2020](#)). Moreover, the portfolio should include investments that aim to increase capital appreciation over time, such as real estate and equities, which hold a higher risk but also offer the possibility of significant growth ([Choueifaty et al., 2013](#)). The investor's financial goals, risk tolerance, and time horizon determine the asset distribution within the portfolio. Investors may enhance returns and mitigate risk by allocating their assets across several asset classes to ensure their portfolio is resilient against market

volatility and economic concerns. Understanding the investment portfolio mechanism provides a groundwork for examining how it affects financial performance.

2.2 Financial Performance

Financial performance is defined by assessing a company's ability to effectively utilize its resources to generate revenue and profit, which can be used to compare similar companies (Fama & French, 2015). The measurements of financial performance are split into three dimensions: the first dimension is the company's productivity or proficiency in turning input into output. The second dimension is the probability, which reflects the level of the company's earnings exceeding its expenses. The third dimension represents the market premium, which is the extent to which a company's market value exceeds its book value (Armantier et al., 2023).

The three dimensions of financial performance can be evaluated using critical metrics such as Return on Assets (ROA) and Return on Equity (ROE). Return on Assets determines the effectiveness of the company's asset use in generating profit. According to Jewell & Mankin's (2011) study, the ROA has become a significant ratio for assessing profitability and is widely recognized as the main measure of profitability in academic literature. (Jewell & Mankin, 2011). On the other hand, Return on Equity is a financial metric that measures a company's profitability by evaluating how well it utilizes shareholders' equity to create earnings. The fundamental indicator of a financial firm's strength is not in its assets size number of branches rather its return on the unit holder (ROE) (Sukmawati & Garsela, 2016). Both ROA and ROE offer a complete picture and depth evaluation of a company's financial performance, demonstrating its efficiency in transforming investment into profits and generating value for shareholders.

In the context of insurance companies, profitability is a significant indicator of their capability to manage premiums, claims, and investments successfully. Thus, insurance companies must achieve a balance between the premiums they receive and claims they release, additionally maximizing their profits through planned and strategic investments. Consequently, the ROA metric provides insight into how collected premiums can generate profits. (Iswatia & Anshoria, 2007). Subsequently, defining financial performance indicators allows for the investigation of how investment allocations influence them.

2.3 Investment Allocation & Financial Performance

Investment portfolio allocation substantially influences the company's financial performance, which is impacted by profitability and risk. Rational and efficient allocation decisions can increase the company's value by maximizing the profit and successfully managing risk, while the decision to increase the company's risk will reduce the company's value. (Mulwa & Kosgei, 2016).

Moreover, an appropriate allocation improves the company's ability to achieve its financial obligations, attract prospective investors, and create sustainable competitive advantages. Therefore, it is crucial to diversify assets within the portfolio, such as stocks, bonds, real estate, etc., to stabilize returns and mitigate risk, which helps preserve the company's financial health and achieve long-term objectives (Awaludin et al., 2021).

Profitability is the combination of the terms 'profit' and 'ability.' It is essential to understand the difference between both terms. Profit, from an accounting perspective, reflects the net income after deducting all expenses, while profitability refers to the company's ability to generate returns on its investments. (Abreham, 2018).

Several studies have discussed the key objectives of company performance, whether wealth or profit maximization. Gupta (2011), in his research, demonstrates that both profit and wealth are linked and mutually affect each other. The aspects of insurance regulations include Capital Adequacy Regulation, Solvency Regulation, and Fraud Detection. These rules are created to protect policyholders' interests and reduce unexpected risks such as insolvency of the insurer (Gupta, 2011). These regulations are formulated based on strategic decisions to enhance the competitiveness of insurance companies and are implemented by regulatory authorities in each country.

2.4 Regulation & Insurance Companies in Qatar

There are two regulatory regimes that exist for insurance companies under Qatari law: the Ministry of Commerce and Industry (MOCI), which is responsible for establishing and licensing insurance companies, while the Qatar Central Bank (QCB) addresses the regulation of insurance business operations and monitors it. The Qatari Insurance companies are registered under three types: Insurance and Reinsurance Companies,

Captive Insurance Companies, and Takaful and Retakaful Companies (Qatar Central Bank, 2017). Insurance and reinsurance companies offer coverage against various risks such as damage, loss, or liability. Captive insurance companies are subsidiaries privately owned by domestic businesses and established to provide insurance coverage for domestic companies and their affiliated entities (Oliver, 2004). The Takaful and Retakaful insurance companies, known as Islamic insurance, adhere to Shariah compliance in all their operational transactions and align with mutual protection and shared responsibility (Halunga et al., 2017).

Qatari insurance regulations impose investment restrictions to ensure diversification and mitigate risk. Accordingly, at least 50% of insurance companies' assets must be invested within Qatar, with no more than 30% invested outside the GCC countries. The maximum investment in equity for Qatari-listed shares (excluding other insurance companies) is 30%, while 15% is the total investment in each share from the total portfolio. Furthermore, all investments in bonds or sukuk must have a credit rating issued by an approved agency. Based on this, insurance companies are allowed to invest up to 95% and 80% as a macro exposure in Qatar sovereign bonds and foreign sovereign bonds, both with a minimum credit rating of A-. While corporate bonds are at the same rating level, the limits are 30% for macro exposure and 20% for micro exposure. These permissible investment instructions aim to ensure that insurance companies preserve liquidity and diversified portfolios to enhance confidence in the Qatari financial system. (Qatar Central Bank, 2017).

3. Research Problem

The insurance industry is essential for any economy. In 2022, the insurance industry contributed around \$ 1.5 billion to the Qatari economy, representing 5.7% of the GCC total insurance market value. (Oxford Business Group, 2024). Investment allocation is a key factor in shaping the financial results of insurance companies. However, there is a lack of empirical studies that highlight how different types of investments separately impact the financial performance of listed insurance companies in Qatar. The existing studies have either concentrated on larger economic areas or have not studied the effect of several investment classes like equities, fixed deposits, managed funds, real estate,

and bonds on financial indicators like Return on Assets (ROA). Therefore, the study aims to fill the gap by answering the question: What is the impact of investment allocation on the financial performance of insurance companies listed on the Qatar Stock Exchange spanning from 2019 to 2023? Accordingly, the second chapter will explore investment theories and provide a literature review to find the gaps in the literature.

4. Research Methodology

The research implements Dhiab's (2021) approach by employing a panel dataset to study time-series data from 2019 to 2023. Cross-sectional data from five insurance companies listed in Qatar will be used to analyze how investment assets, including fixed deposits, bonds, managed funds, real estate, and equities, along with control variables, influence the profitability measured by the ROA of these companies. The study uses the Fixed Effects approach to examine the allocation model, including investment in fixed deposits, bonds, managed funds, and real estate with ROA. Additionally, the Random Effects model is employed for subgroup models to analyze each investment asset alongside its related control variables with ROA. This research hypothesizes that investments in fixed deposits, bonds, managed funds, real estate, and equities each have a significant positive impact on the ROA of Qatari insurance companies.

CHAPTER TWO: BACKGROUND & LITERATURE REVIEW

1. Introduction

This chapter will explore the theoretical and empirical review of investment allocation and its influence on the financial performance of insurance companies listed on the Qatar Stock Exchange (QSE). The main areas of focus in the theoretical review part include the fundamental background of investment instruments used in the research and investment-related theory, which explains the investment behavior of the market and investors in the insurance sector. Additionally, it will focus on allocating investment within a portfolio to achieve the ideal balance between risk and return. Moreover, this section will describe investment theories and instruments, the insurance framework alongside financial performance, an empirical literature review, and illustrate the research hypothesis.

2. Investment Theories & Instruments

2.1 Investment Related Theories

Financial decision making relies on investment theories, which are considered a cornerstone of the financial framework. These theories provide a systematic framework for comprehending how individuals and organizations allocate assets and create a balance between maximizing profit and managing risks. This knowledge includes several principles, theories, and models, each introducing different perspectives on investment strategies.

I. Modern Portfolio Theory (MPT)

In 1952, Harry Markowitz introduced the Modern Portfolio Theory (MPT), which forms the backbone of investment theories and inspires how investor's view return and risk. MPT depends on quantitative techniques for portfolio creation, which highlights diversification to achieve given returns based on a certain level of risk ([Mangram, 2013](#)). According to Markowitz, investing in diversified assets that are not highly correlated leads to a reduction in overall portfolio risk. In other words, investing in assets with high performance can enhance the poor performance of other assets, hence decreasing the overall portfolio risk without sacrificing returns. ([Kalymon, 2009](#)).

MPT assumes that investors are risk-averse and rational; they would rather select a portfolio with lower risk for the same expected returns. It believes that asset prices reflect all available information in the market since the markets are efficient, and investors aim to maximize utility by making decisions based on projected returns and variance. (Beyhaghi & Hawley, 2013).

The main instrument in this theory is mean-variance optimization, which determines the perfect portfolio allocation by evaluating the expected return and the covariance among different asset classes. This assists investors in determining the ideal weight of each asset in the portfolio. (Rani, 2012). The theory faces several criticisms, emphasizing that in real world scenarios, returns are not always normally distributed and can lead to incorrect decisions if it relies on historical data, particularly in unpredictable markets. (Rutterford & Sotiropoulos, 2016).

The concept of enhancing the mean variance supports insurers by indicating the ideal allocation of investments. Particularly during market recessions, insurance companies might stabilize their portfolios by modifying their assets to moderate potential losses. (Hardy, 2003).

II. Capital Assets Pricing Model (CAPM)

In 1960, Sharpe, Lintner, and Mossin built on the previous theory (MPT). He developed the Capital Asset Pricing Model (CAPM), which explains the relationship between the expected return and systematic risk. CAPM is the first model that integrates the risk concept into asset assessment. It evaluates the correlation between asset returns and market returns, as well as security's sensitivity to market movements (Fama & French, 2003), which is highly importance for insurer to adjust their portfolios alongside external economic factors. (Cummins & Phillips, 2005).

The main concept behind CAPM is that the investors must receive compensation in two forms: time value of money and risk. The time value of money is known by the risk-free rate, which pays the investors to place funds in any investment for a specific duration. The risk premium pays for the investors to take additional risk and can be measured by beta (β), which compares the movement of the assets relative to the market (Fama & French, 2006).

III. Liability Driven Theory (LDT)

While the previous theory, “CAPM,” concentrates on enhancing the asset selection based on analyzing the portfolio risk and return, the Liability Driven Theory (LDT) relies on supporting these assets to meet its obligations. LDT, known as Liability Driven Investment, is an investment strategy intended to manage a company’s assets in a way that aligns with its liabilities ([Waring, 2011](#)). This methodology is suitable for institutional investors like insurance companies and pension funds, whose main target is to ensure to meet their future obligations. ([Real, 2014](#)).

The theory focuses on core aspects such as matching the company’s assets with its liabilities by allocating assets that generate returns and support liquidity when liability is due. In addition, LDT concentrates on creating a portfolio involving fixed income securities to ensure the income from these securities meets the expected outcomes for the company (liabilities) without the necessity of selling the assets. This theory enhances long-term planning through wisely selected assets that can cover the company’s liabilities. ([Bragt & Kort, 2011](#)).

The LDT was criticized for its implementation complexity. It requires advanced modeling and continuous monitoring, which requires additional effort and time. Moreover, unpredictable market conditions can weaken the effectiveness of matching and hedging strategies. ([Latifa & Faris, 2019](#)).

IV. The Strategic Asset Allocation (SAA)

Strategic Asset Allocation (SAA) combines the understanding knowledge gained from MPT, CAPM, and LDI into a comprehensive investment strategy by employing a long-term investment approach that allocates various assets based on the investor’s risk tolerance, goals and investment timeframe ([Andreu & Sarto, 2015](#)). The strategy requires setting allocation targets for several assets within the portfolio, such as bonds, equities, cash, and real estate, and managing these targets by regularly rebalancing the portfolio. One of the SAA concepts is to diversify asset classes, aiming to enhance the performance of underperforming asset classes with other better ones to avoid market volatility and meet the company’s liabilities ([Brinson et al., 1991](#)). Moreover, the periodic rebalancing in this strategy focuses on buying underperformance assets and selling overperforming

ones to maintain the portfolio's risk and return. Additionally, the strategy is designed to handle long-term investments, typically every 3-5 years, assuming that the market fluctuations within the short-term horizon are of lesser significance than the long-term trends. (Petre, 2015). Despite the benefits of the SAA strategy, critics perceive that its fixed nature leads to missed investment opportunities in the short horizon.

2.2 Investment Types

Investment theories build a fundamental concept for investors to transition to the practical application of these theories, beginning with understanding the investment types. There are two types of investment that investors can choose between direct and indirect investment. Direct investment encompasses purchasing and managing financial instruments such as equities and bonds on an individual basis through the financial market. (Jensen & Smith, 1984). This approach requires a comprehensive understanding of the market dynamics, as individuals are responsible for all related risks and decisions. Conversely, indirect investment refers to purchasing a financial instrument through intermediate institutions like managed funds, pension funds, and banks (Fama & French, 2002). These types of financial institutions collect funds from several investors to generate diversified portfolios and manage the decision-making process, aiming to reduce the load on individual investors in exchange for receiving an agreed share from the return (Levišauskait, 2010).

To generate a well-informed portfolio, investors must go through the steps of the investment process. First, they must determine their risk tolerance and long-term goals, such as maximizing profit or preserving wealth. Second, they must determine the invested amount to allocate it to the proper asset class. Third, they should analyze the securities return and risk within the chosen asset class to identify the specific securities for investment. (Haile, 2016).

2.3 Investment Instruments

Integrating investment theories and types with the knowledge of investment tools allows investors to understand how to invest in the financial markets. This understanding leads to enhanced portfolio performance through decisions based on financial knowledge (Fama & French, 2004).

I. Equities

Equity investment provides ownership in a company, usually in the form of stocks. When investors purchase equities, they are effectively purchasing a piece of the company's ownership, which allows them the right to vote and claim earnings from the company's profits, typically in the form of dividends. Equity investments have the ability to generate higher returns, supported by capital appreciation. ([Chang & d'Avernas, 2023](#)).

Nevertheless, equities are also linked to significant risk due to their susceptibility to price fluctuations and are influenced by several variables such as company performance, market circumstances, and economic trends. The main advantage of equity investment is the possibility of substantial capital growth over the long term through investing in a company with a strong financial performance based on the preliminary financial analysis conducted before investing in the stock. In addition, equity dividend payout introduced a steady consistent source of income for the investor. Moreover, the liquidity offered by the equities increases their favorability among investors. ([VanderPal, 2004](#)).

The primary hazard is market risk, which arises from market fluctuations, leading to a drop in a company's value. In addition to business risk related to a particular company's performance. Furthermore, to make rational decisions within the stock market, investors are required to have full knowledge of trading, such as understanding financial statements and being aware of any changes in governance policies. ([Bali & Cakici, 2010](#)).

There are several types of equities, such as common and preferred stocks. Common stocks provide investors with features such as ownership rights, voting privileges, and opportunities to increase capital value. The dividend payout in these kinds of stock might vary, unlike preferred stocks, which offer consistent dividend payment with a higher priority for payout before common stockholders but typically lack voting rights. Therefore, common stocks are suited for investors who are seeking growth, while preferred stocks are more attractive to conservative investors who prefer stability and consistent income. ([Levy & Levy, 2021](#)).

II. Fixed Income Securities

Bonds are financial instruments issued by various entities, including governments, municipalities, and corporations, in order to raise capital. Investors who buy bonds

effectively lend money to the issuer in return for frequent interest payments and the repayment of the initial amount invested when the bond reaches its maturity date. Bonds can be categorized based on their issuer, whether the government or corporate entities; they can also be classified according to their credit rating quality and maturity date (Sojeva, 2015).

Therefore, bonds are considered less risky than stocks due to their ability to generate constant interest income and ensure the return of the principal amount, which gives them preference among conservative investors. Bonds also enhance portfolio diversification by lowering the overall risk, particularly when investing in government bonds. (Graziano & Habib, 2024). The risks associated with bonds contain interest rate risk, which accounts for any drop in bond prices regarding the increase in the interest rate, credit risk (also known as default risk), and inflation risk to avoid the erosion of future interest and principal payment due to a decrease in the purchasing power. (Novelli & Barcia, 2021).

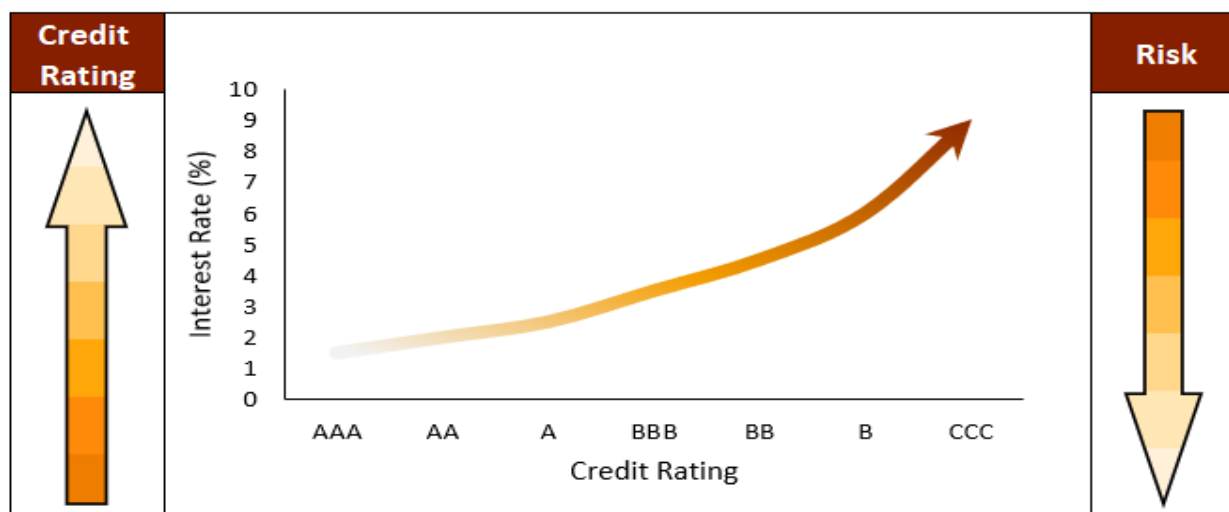
The three most prominent Credit rating agencies worldwide (Moody's Investor Service, Standard & Poor's, and Fitch Ratings) assign a credit rating to each debt security issuer based on their analysis, which reflects the issuer's ability to pay its obligations. There is an inverse relationship between the corporation's bond credit rating and the given interest rate; the higher credit rate leads to a lower interest rate, which is reflected as a safer investment due to the lower risk (Baker & Mansi, 2002). This is reflected in table 2.1 of bonds' credit rating and chart 2.1 for credit rating and bonds' interest rate.

•**Table 2.1:** Credit Rating & Rating Level

Rating Level	Moody's	S&P	Fitch
Highest Quality	Aaa	AAA	AAA
High Quality	Aa1	AA+	AA+
Upper Medium Quality	Aa2	AA	AA
Lower Medium Quality	Ba1	BB+	BB+
Non-Investment Quality	B1	B+	B+
Highly Speculative	Caa	CCC	CCC
Default	C	D	D

Table 2.1 shows the credit rating and rating level of Mody's, S&P, and Fitch agencies. (Moody's, 2023; S&P Global, 2023; Fitch, 2024).

• Chart 2.1: Credit rating & Bonds Interest Rate



Line Chart 2.1 shows an estimated chart showing the inverse relationship between credit rating and Bond interest rate.

III. Fixed Deposits

A fixed deposit is one of the safest investment options provided by financial institutions and banks to ensure a guaranteed rate of return for a specific period of time. Fixed deposits are attractive to risk-averse investors as they offer reliable returns, flexibility in terms and duration, several options of payout ratio such as frequent payouts or cumulative interest (Shantnu & Ray, 2022). The banks and financial institutions usually provide the companies with a higher interest rate on fixed deposits than the regular accounts, particularly during the increasing federal bank interest rates driven by a high inflation rate.

Nevertheless, fixed deposits have some risks, including the possibility of interest rate fluctuation, penalties for early withdrawal, and the risk of inflation, which lead to erosion of actual return over time (Kim & Rezende, 2023). Moreover, the opportunity cost can be considered a risk of the fixed deposit, as the deposit amount will be locked in for the agreed duration, leading to missed opportunities for higher returns from other investments. Despite these hazards, Fixed deposits are a valuable asset to be added to the investment portfolio, offering stability and decreasing total portfolio risk. (Win, 2023).

IV. Real Estate

Investing in real estate involves buying a property, including land and buildings, to enhance capital and generate higher income over time. Real estate is considered a

hedging tool contrary to inflation due to its less volatile characteristics than other investment instruments. Therefore, investors benefit from investing in real estate by diversifying their portfolio, which reduces risk (Muckenhaupt, et al., 2023). On the other hand, investing in real estate depends on the investor's level of risk tolerance regarding the illiquidity of the asset, which makes it hard to buy or sell immediately when needed (Günther et al., 2022).

The high cost of real estate management fees deters investors from the real estate market. As a result, investors have recently shifted to investing in Real Estate Investment Trusts (REITs), which allow the investors to earn a share of the income generated from commercial real estate ownership instead of purchasing, managing, or financing the property. According to regulations, REITs must pay out at least 90% of their net income to shareholders as dividends, which helps them overcome the issues related to real estate trust and become more attractive (Zhang et al., 2023).

3. Insurance Sector Framework

This part of the study will extend the understanding of the theoretical approach to investment and the instruments to their practical application within the insurance sector by examining the main concepts of the insurance field.

3.1 Insurance Dynamics

Insurance companies are crucial in developing a country's economy by supporting business infrastructure and sustainability. Insurance is an agreement between the policyholder (individuals or entity) and the policy issuer (insurance company), where the insurer provides financial coverage for risks or losses that may occur within the agreed policy terms. In return, the policyholder pays regular premiums for these financial coverage services. When the policyholder experiences a loss covered by the policy, they can submit a claim to the insurer for financial compensation (Čiković, et al., 2024). Accordingly, the premiums they regularly pay are used to manage insurance and reinsurance operations and earned profit. In addition, insurance companies invest part of the premium to generate additional revenue, ensuring they can cover any future claim obligations (Abdina, et al., 2022).

Policyholders can have various types of insurance, such as health insurance, which covers medical expenses; motor insurance, which provides coverage for vehicle damage and losses; property insurance, which helps individuals protect their buildings and supports companies by covering their inventory in the event of accidents like fire or theft; and life insurance, which allowed the insurer to pay for the policyholder's dependents a specific amount upon the death of the policyholder. (Robson, 2015). Having insurance means transferring risk from policyholders (individuals and companies) to the insurer, providing financial protection and assurance that any unexpected accident will be covered according to the policy items (Breckenridge, et al., 2014).

3.2 Insurance Profitability

Profitability in insurance companies measures the company's capability to generate profit from its operations by balancing the earning income from collected premiums and investments against incurred claims expenses and other administrative and operating costs (Berhe & Kaur, 2017). Insurance profitability is a multifaceted concept that reflects the financial health and position of the insurance company.

Underwriting profitability contains the valuation of premiums written and earned, where premiums written relate to the total amount collected from the issued insurance policies during a specific timeframe, while the premiums earned refer to the portion of these premiums that have been covered by the passed period (Sutanto et al., 2024). In other words, written premiums represent the revenue from selling the policy to the policyholder, while earned premiums represent the revenue for the period covered by the insurance policy. Claims and losses impact underwriting profitability and can be measured by the loss ratio, which is claims incurred to the premium earned. A lower loss ratio determines better performance (Markonah, 2021). Operational expenses like employee salaries and administrative costs also influence underwriting profitability. This can be measured by the expense ratio, which is the ratio of underwriting expenses to premiums earned, used to examine operational efficiency (Hissiyah & Meylianingrum, 2023).

Investment income is another concept that assists in evaluating insurance companies' profitability. Insurance companies invest a part of the collected premiums in several financial tools to create additional income, including dividends, interest, and capital gains

(Ugli, 2023). This income influences overall profitability by effectively contributing to coverage claims and expenses (Wani & Dar, 2015). This can be evaluated through the combined ratio, which summarizes the loss and expense ratios. A combined ratio lower than 100% indicates a profit and vice versa (Mehari & Aemiro, 2013).

3.3 Insurance Regulations

There are two regulatory regimes that exist for insurance companies under Qatari law: the Ministry of Commerce and Industry (MOCI) is responsible for establishing and licensing insurance companies, and the Qatar Central Bank (QCB) addresses the regulation of insurance business operations and monitors it. The Qatari Insurance companies are registered under three types: Insurance and Reinsurance Companies, Captive Insurance Companies and Takaful and Retakaful Companies (Qatar Central Bank, 2017). Insurance and reinsurance companies offer coverage against various risks such as damage, loss, or liability. Captive insurance companies are subsidiaries that are wholly owned by a domestic business and established to provide insurance coverage for the domestic company and its affiliated entities (Oliver, 2004). The Takaful and Retakaful insurance companies, also known as Islamic insurance, adhere to Shariah compliance in all their operational transactions and align with the concept of mutual protection and share responsibility (Halunga et al., 2017).

Qatari insurance regulations impose investment restrictions to ensure diversification and mitigate risk. Accordingly, at least 50% of insurance companies' assets must be invested within Qatar, with no more than 30% invested outside. The maximum investment in equity for Qatari listed shares (excluding other insurance companies) is 30%, while 15% is the total investment in each share from the total portfolio. Furthermore, all investments in bonds or sukuk must have a credit rating issued by an approved agency. Based on this, insurance companies are allowed to invest up to 95% and 80% as a macro exposure in Qatar sovereign bonds and foreign sovereign bonds, both with a minimum credit rating of A-. While corporate bonds are at the same rating level, the limits are 30% for macro exposure and 20% for micro exposure. These permissible investment instructions aim to ensure that insurance companies preserve a liquidity and diversified portfolio to enhance confidence in the Qatari financial system (Qatar Central Bank, 2017).

4. Empirical Literature Review

4.1 Global Studies

Several researchers discussed the impact of diversification and regulation on the financial performance of insurance companies. [Zhang's \(2015\)](#) study concentrates on portfolio diversification to determine its impact on optimizing investment portfolios through mitigating risks and enhancing returns. The research employed quantitative data from 2007 to 2014, covering several variables such as returns on various asset classes, including funds, government bonds, corporate bonds, and equities in Chinese insurance companies. The results emphasize that spreading investments through different asset classes positively impacts investment income and reduces risk levels. Moreover, the study demonstrates a significant relationship between regulations and investment ratios, showing that regulatory framework directly affects the risk and return of the investment portfolio by adjusting investment strategies to align with these regulations. Similarly, [Bendrich and Bergström \(2015\)](#) study utilized in the European Economic area developed a comprehensive analysis by evaluating the influence of different asset classes, including real estate, cash equivalent, receivables, loans, debt securities, and equity, derivatives, on the return of investment (ROI) of 42 insurance companies for 11 years. The research underscores the significant role of asset allocation and its impact on financial performance. Also, it highlights the complexity of implementing investment strategies in the insurance sector, especially considering regulatory changes like the Solvency II directive, which influences asset management. Both studies aligned with SAA theory, which focuses on asset diversification by allocating assets based on appropriate strategies to enhance company performance ([Hoevenaars et al., 2014](#)).

Other researchers have examined the internal and external factors affecting insurance companies' profitability. [Kripa and Aljasllari \(2016\)](#) analyze the factors, such as fixed assets, liabilities, liquidities, growth rate, volume of capital, and company size, that affected the profitability of insurance companies in Albania from 2008 to 2013. The results indicate that an increase in fixed assets relative to total assets, higher liabilities, and greater liquidity could harmfully impact a company's financial health. On the other hand, the growth rate, volume of capital, and company size are positively correlated with profitability; they are statistically insignificant factors, emphasizing that economies of

scale do not necessarily lead to higher profits and that the volume of capital does not always strongly contribute to the profitability insurance companies. This research supports the SAA theory, which shows that the unnecessary increase in assets could benefit the company. Moreover, [Bruca and Batrinca \(2014\)](#) extended their analysis to involve both internal characteristics of the company and external economic variables. The study examined the key determinants like company size, financial leverage, solvency margin, risk retention, growth of gross written premiums, and underwriting risk, which impact the performance of insurance companies. The study spanned from 2008 to 2012 for 21 insurance companies in the Romanian market, finding that factors like solvency margin and company size positively impact company profitability, while other factors such as financial leverage negatively affect financial performance, which emphasizes the importance of employing a balanced approach to assets management and risks reflect by LDI theory [Clare & Wagstaff, \(2011\)](#). Furthermore, [Shikwe \(2016\)](#) discussed the relationship between asset allocation and investment returns of insurance companies in Kenya, focusing on how various asset classes can affect the company's profitability. The researcher used a quantitative method to examine variables like cash, real estate, bonds, and equities across five years from 49 insurance companies. Unlike cash, which negatively influences profitability, Shikwe found a positive relationship between real estate, bonds, equities, and investment income. Moreover, the allocation of assets reflects only 7% of the investment returns, indicating that other factors, such as management decisions, market timing, and security selection, play a larger role. Additionally, regulatory standards could influence profitability; thus, less regulation might lead to more active portfolios, enhancing performance. The Shikwe study emphasizes the importance of the SAA approach in optimizing asset allocation to generate high returns for the portfolio [\(Andreu & Sarto, 2015\)](#). Moreover, [Ismail \(2013\)](#) compared the financial performance of the General Takaful and Insurance companies (Islamic and conventional insurance companies) in Malaysia from 2004 to 2007. The study analyzed various variables, including equity return, company size, solvency margin, liquidity, interest rate, reinsurance/retakaful dependence, and stability of underwriting operation. The study found that larger companies performed better financially, and increased reliance on reinsurance and retakaful led to enhanced financial outcomes driven by risk distribution

techniques. In contrast, higher solvency margins are related to poorer financial performance, reflecting inefficient use of capital. Moreover, higher interest rates did not necessarily lead to higher financial outcomes, indicating a negative correlation. This comparison underscores the differential impact of investment allocation on several insurance companies, providing a broader view of how that impact shapes financial outcomes by employing SSA theory.

Between 2000 and 2017, researchers examined the impact of investment choice on profitability within the African region. [Abraham \(2008\)](#) noticed that investments in fixed assets, time deposits, and capital adequacy ratio significantly improved both return on assets (ROA) and return on equity (ROE) due to their consistent returns. However, treasury bills and equities reflected insignificant impact on financial performance. Therefore, the study emphasizes the importance of aligning strategic investment choices with the market conditions and regulatory frameworks to enhance profitability. A case study by [Boah & Adu \(2015\)](#) was adopted at Multigrow Insurance Company. Using linear programming, the study aimed to maximize returns by investing amounts in five different sectors (Mobile Oil, Shell Oil, Anglo Gold, Tarkwa Gold, and Government Bonds). The Sectors were specially selected to capitalize on the higher returns of commodities, known for their capacity to hedge against economic volatilities, in addition to the stabilizing impact of government bonds. The researchers found that investments in specific sectors should be adjusted according to the model's proposals to reach the highest returns. Thus, using government bonds supports the balancing of the investment portfolio. Furthermore, they highly recommended diversifying the portfolio and employing case study research to fill gaps within the company's investment strategy. Therefore, both studies directly link with the principles of MPT, highlighting the crucial role of asset diversification in reducing unsystematic risks ([Franziska et al., 2015](#)). In Kenya, Various literatures concentrates on the impact of strategic investment allocation on the company's performance measured by ROI. The studies examine different asset types invested by Kenyan companies from 2007 to 2014, including equity, bond, real estate, company size, and mutual funds. [Kimeu \(2015\)](#) indicates that investment in equities, real estate, and bonds positively impacts financial performance, accounting for an average of 60% of the changes in financial performance. Furthermore, the company size factor was considered in the study to adjust

for its influence on financial performance, proposing that larger companies could experience different investment outcomes. Similarly, [Kamwaro \(2013\)](#) indicates that investments in real estate, bonds, and equities have a direct positive impact on the financial performance of these companies, emphasizing the benefits of a diversified investment strategy that relies on CAPM, which aids in seeking several growth opportunities and balancing risks.

4.2 MENA Regional Studies

The study of [Almajali et al. \(2012\)](#) demonstrates the internal and external factors within Jordanian insurance companies by using T-tests and multiple regression analysis across a period of six years to investigate the effects of liquidity, leverage, management competence, and company size on the insurance companies' financial performance. The research indicates that the variables of company size and leverage have a positive relationship with profitability. In contrast, liquidity has a mixed impact, highlighting the significance of the CAPM theory, which focuses on the trade-off between risk and return in asset selection ([Fama & French, 2004](#)). Within the GCC countries, [Ahmed \(2022\)](#) analyzes his study of the optimal investment portfolio management for insurance and reinsurance companies in the GCC countries. The data extracted from each country's top 5 listed insurance companies from 2016 to 2020 for ROI as dependent variable and investment in (fixed deposits, fixed income, equities property) alongside gross written premium, investment income, net profit, and interest rate. The research found that insurance companies' financial performance is significantly influenced by investment income. However, real estate and equities investments do not necessarily positively impact profitability. Additionally, [Dhiab's \(2021\)](#) study explores the factors affecting the profitability of Saudi insurance companies, measured by ROA, between 2009 and 2017. These factors include growth rate, company size, company age written premium, leverage ratio, liquidity ratio, and tangible ratio. The research outcomes highlight that the profitability of insurance companies is positively influenced by growth rate and written premium, while the leverage ratio and tangible ratio have a negative impact on profitability. The study underscores the importance of examining internal factors that influence the financial performance of Saudi insurance companies. Both studies focus on SAA by

emphasizing the importance of asset diversification and long-term management strategies to mitigate risks.

5. Literature Gap

The theoretical framework establishes a strong foundation by combining critical investment theories such as MPT, CAPM, LDI, and SAA, which have been validated within several markets. However, the empirical review emphasizes that investment allocation significantly impacts the financial performance of insurance companies across various countries. These practical studies are driven by the theoretical framework. Research by Ismail (2013), Kripa, Aljasllari (2016), Almajali et al. (2012), and Bruca and Batrinca (2014) highlights various deterrents like liquidity, company size, and solvency as internal factors that influence the company profitability alongside external economic variables. While Zhang (2015), Bendrich and Bergstrom (2015), and Shikwe (2016) underline the importance of regulatory limitation and portfolio diversification in improving financial outcomes. Moreover, Boah et al. (2015), Kimeu (2015), Kamwaro (2013), Abraham (2018), Dhiab (2021), and Ahmed (2022) found that companies can invest in asset classes like fixed assets and bonds to maximize returns and minimize the portfolio overall risk. The present research will extend Dhiab's (2021) study by examining a similar context in another GCC country, particularly Qatar, and providing deeper insights into the impact of investment income on the financial performance of insurance companies.

Even though the comprehensive perceptions provided by these studies, there are notable gaps that remain in the literature. Firstly, the available research mainly concentrates on regions like Jordan, Malaysia, and several parts of Africa, with limited attention given to the insurance sector in GCC countries, particularly Qatar. Secondly, there is a lack of research studying the relationship between the financial performance of insurance companies and investment allocation, specifically equities, fixed deposits, real estate, managed funds, and bonds within the Qatari insurance market. Therefore, this study aims to address these gaps by examining the impact of investment allocation on the financial performance of insurance companies listed on the Qatar Stock Exchange.

6. Research Hypotheses

According to the theoretical framework driven by theories like MPT, CAPM, LDI, and SAA, alongside the empirical findings of the literature. This research will build on the previous studies by covering the listed insurance companies in the Qatar Stock Exchange spanning from 2019-2023. Therefore, the research aims to address the founded gaps and examine the positive impact of different asset classes by the following Hypotheses:

- H_0^1 : Investment in fixed deposits has a significant negative impact on ROA of listed insurance companies in Qatar.
 H_1^1 : Investment in fixed deposits has a significantly positive impact on ROA of listed insurance companies in Qatar.
- H_0^2 : Investment in bonds has a significant negative impact on ROA of listed insurance companies in Qatar.
 H_1^2 : Investment in bonds has a significantly positive impact on ROA of listed insurance companies in Qatar.
- H_0^3 : Investment in managed funds has a significant negative impact on ROA of listed insurance companies in Qatar.
 H_1^3 : Investment in managed funds has a significantly positive impact on ROA of listed insurance companies in Qatar.
- H_0^4 : Investment in real estate has a significant negative impact on ROA of listed insurance companies in Qatar.
 H_1^4 : Investment in real estate has a significantly positive impact on ROA of listed insurance companies in Qatar.
- H_0^5 : Investment in equities has a significant negative impact on ROA of listed insurance companies in Qatar.
 H_1^5 : Investment in equities has a significantly positive impact on ROA of listed insurance companies in Qatar.

After defining the theoretical bases and establishing the research hypotheses, the next chapter will describe the research methods and methodologies used to support these assumptions.

CHAPTER THREE: EMPIRICAL METHODOLOGY & DATA

1. Introduction

This chapter aims to analyze the impact of investment allocation on the financial performance of insurance companies listed on the Qatar Stock Exchange across five years from 2019 to 2023. It covers the influence of investment in equities, fixed deposits, managed funds, and bonds on the selected insurance companies' Return on Assets (ROA). The research will highlight the research design and philosophy, sample selection, data collection procedures, variable descriptions, analytical descriptions, and diagnostic Tests.

2. Empirical strategy

2.1 Research Approach

The study adopts a positivist philosophy, utilizing quantitative methods and focusing on empirical data. It investigates the influence of investment allocation on the financial performance of insurance companies listed in Qatar, using regression analysis to test the study's hypotheses. Moreover, the research relies on reliable and valid data obtained from the companies' financial reports, which are examined through diagnostic tests like the Hausman test to enhance the accuracy of the outcomes using the STATA program.

Research design provides the reader with insight into the data collection methods and analysis techniques used to analyze the research outcome (Bell et al., 2022). Unlike qualitative research, the quantitative approach uses numerical data to explain the relationships between variables, which uses visual and auditory data to clarify problems and develop ideas (Mcleod, 2023). The purpose of this research is to employ a quantitative approach, which is well-suited to address the numerical problem of the impact of investment allocation on the financial performance indicator, measured by Return on Assets (ROA). Therefore, it is considered the appropriate approach for this research for various reasons, such as its capability to determine measurement objectives, which is ROA that provides precise quantification (Morage et al., 2022). Moreover, analyzing the strength of the impact of investment allocation on financial performance needs a quantitative design, which is an ideal technique for hypothesis testing (Romani et al.,

2022). This systematic approach provides clear insights into the contribution of investment allocation to the financial performance within the Qatari insurance sector.

2.2 Sample Selection

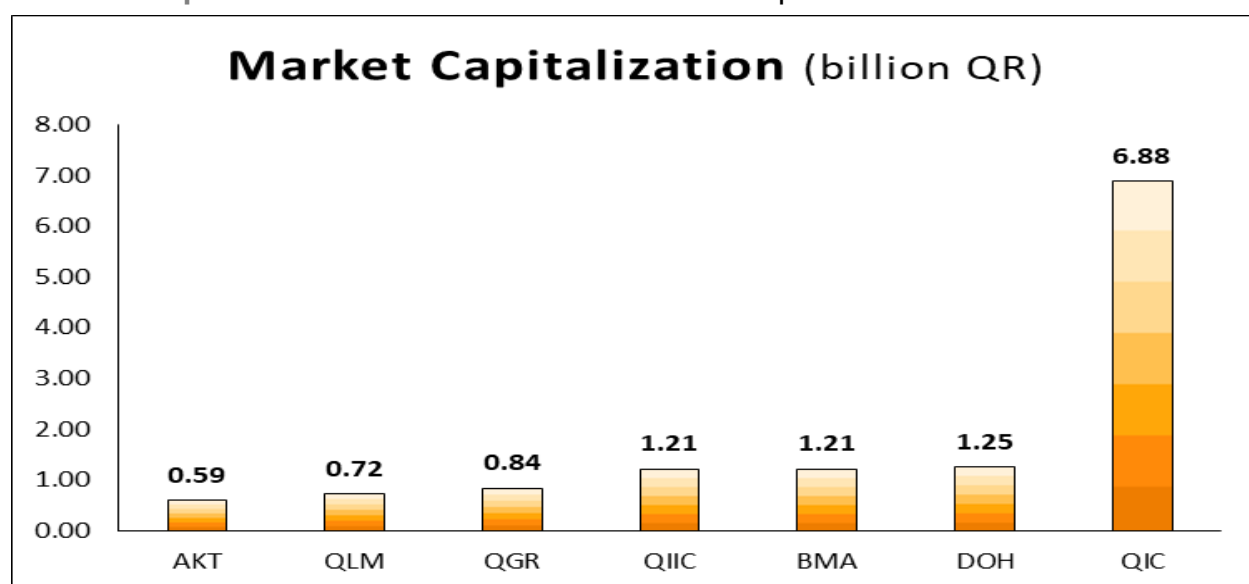
I. Research Population

As of 2023, according to the Qatar Central Bank, there are 47 insurance companies licensed in Qatar. The companies are divided into local and foreign insurance companies and have different characteristics, such as company size, type of insurance services provided, and type of insurance framework, whether conventional or Islamic (Takaful) companies. This research targets the listed insurance companies on the Qatar Stock Exchange (QSE), including seven companies. However, the research framework period will analyze only five companies active during the study period to ensure consistency by examining them in the same timeframe from 2023 to 2019.

II. Target Sample

As of August 2024, the total market capitalization of the selected five companies is around QAR 10.77 billion, out of QAR 12.7 billion for the total Qatari insurance market. (QSE, 2024), reflecting 85% of the market share, the selected sample is incredibly representative of the whole sector, making it justifiable for this research, as shown in the following graph:

• **Graph 3.1:** Qatar Insurance Sector Market Capitalization



Graph 3.1: Qatari Insurance Companies Market Capitalization, retrieved from QSE, Aug 2024.

Therefore, it is reasonable to confidently generalize the sample of five insurance companies out of seven to the Qatari insurance sector. Accordingly, the research frame matrix involves five listed insurance companies across five years from 2019 to 2023, with each company including five variables, resulting in 25 observations for each variable.

2.3 Data Collection

I. Data Sources & Procedures

The most suitable data for this research is secondary data, which holds various benefits since it's publicly accessible and time-sensitive ([Zikumund et al., 2013](#)). Data is sourced from reliable financial platforms like Bloomberg, which Northumbria University provides. However, the required data for this research is part of the insurance companies' financial statements, so it is impossible to have the breakdown of the assets as they vary between individual companies when displaying the data on the platform. Therefore, the assets breakdown data was collected manually from the annual financial statements of the five insurance companies across five years, which are displayed on the Qatar Stock Exchange (QSE) website. Thus, the multi-source approach provides a solid dataset to answer the research question.

The selected period witnessed various challenges for Qatari insurance companies, mainly the changes in the International Financial Reporting Standards from IFRS 4 to IFRS 17. IFRS 17 has to measure the investments at fair value or amortized cost depending on their classification, while IFRS 4, each insurance company could use different accounting policies ([Owais & Dahiyat, 2021](#)).

II. Selected Companies

- Qatar Insurance Company (QIC)

Qatar Insurance Company (QIC), established in 1964, is the largest insurance company in Qatar, with total assets surpassing QAR 13 billion as of the 2023 financial statements. Additionally, it has the largest market capitalization at 6.9 billion. According to Standard & Poor's credit rating agency, QIC has been assigned an 'A' rating for its strong financial health and effective risk management. ([Qatar Insurance Company, 2024](#)).

- **Doha Insurance Group (DOH)**

In 1999, Doha Insurance Group emerged as the third insurance company in Qatar. The company's total assets amount to approximately QAR 2.3 billion, with a market capitalization above QAR 1.2 billion. The Introduction of comprehensive insurance products reflects the company's strong financial health and stability, which has led to achieving an 'A-' credit rating from Standard & Poor's. In 2006, DOH expanded its operations to include Doha Takaful, providing insurance products under the Sharia-compliant umbrella. This growth increased trust among the Qatari community and investors, aligning with the values of an Islamic society. ([Doha Insurance Group, 2024](#)).

- **Qatar General Insurance & Reinsurance Company (QGR)**

Qatar General Insurance & Reinsurance Company was established in 1979 as a part of conventional insurance companies in Qatar. QGR holds approximately QAR 2 billion in total assets, and its market capitalization exceeds QAR 800 million. The company demonstrates an efficient ability to manage risks and maintains a stable outlook, which is complemented by its 'BBB+' rating from Standard & Poor's ([Qatar Stock Exchange, 2024](#)).

- **Al Khaleej Takaful Insurance (AKT)**

Al Khaleej Takaful Insurance Company is Qatar's first and largest Islamic insurance company. It was founded in 1979 and provides different takaful (Islamic insurance) products. AKHI holds QAR 1.6 billion in assets, and its market capitalization surpasses QAR 612 million. According to Standard & Poor's, AKH is rated 'A-', reflecting its strong financial position in the insurance industry. ([Al Khaleej Takaful Insurance , 2024](#)).

- **Qatar Islamic Insurance Company (QII)**

The company was established in 1995 as a part of the Islamic insurance industry in Qatar, offering Sharia-compliant solutions aligning with the increasing demand for Takaful products. QII manages QAR 1.5 billion of assets, and as of July 2024, its market capitalization is around 1.2 billion. Based on Standard & Poor's, the agency has assigned QISI an 'A-' credit rating. ([Qatar Islamic Insurance Company, 2024](#)).

III. Data Validation & Reliability

The collection of standardized data obtained from financial statements is reliable since they were reported according to the accounting regulation IFRS and have been audited by approved auditing agencies like KPMG, Ernst & Young, and Deloitte. Therefore, the quantitative design used in this study applies accurate methodologies that highlight data reliability and validity. Since the data were collected from reliable sources like financial statements and the Bloomberg financial platform, which enhances the validity of the data and reflects the actual population (John, 2010).

2.4 Variable Descriptions

This Research includes one dependent variable and six independent variables, as seen below.

- **Figure 3.1:** study framework:

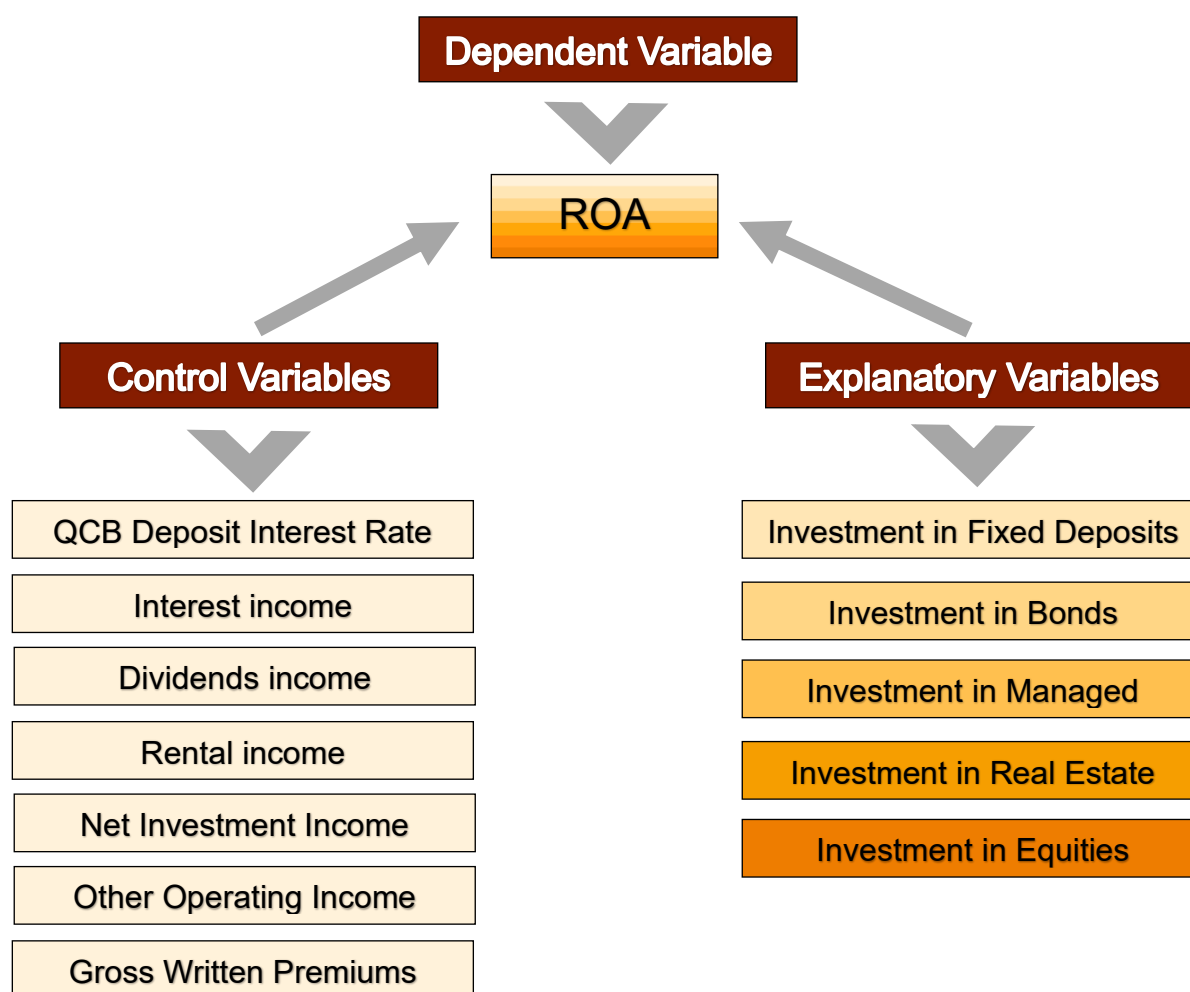


Figure 3.1: Present the Study Framework for Dependent Variable, Explanatory Variables, and Control Variables.

I. Dependent Variable

Return on Assets (ROA) is a financial ratio used to assess a company's assets profitability, indicating the ability to generate earnings from the company's assets by dividing the company's net income by its total assets. (Jonnius & Marsudi, 2021). ROA has several advantages, as explained by Almajali et al. (2012), including a worldwide accepted definition and simplicity of calculation. According to Burca and Batrinca (2014), ROA was established in 1919 by DuPont to emphasize a company's capability to use its assets effectively and efficiently. In addition, this metric is commonly used as a profitability measurement for insurance companies, as highlighted by various literature, including Almajali et al. (2012), Ismail (2013), Kripa and Aljasllari (2016), Abraham (2018) and Ahmed (2022). However, other research used different measurements to evaluate profitability, like ROI, which was founded by Kimeu (2015) and Kamwaro (2013), Bendrich and Bergstrom (2015), and Shikwe (2016).

II. Explanatory Variables

- **Fixed Deposits**

Fixed deposits (FD) play a significant role in insurance companies' investment portfolios, offering liquidity and stable interest income for a specified period at a decided interest rate. (Dharmawansa & Madhuwanthi, 2023). This study will determine the contribution of fixed deposit as an independent variable for the insurance companies' profitability by evaluating the ratio of total fixed deposit investments to total assets alongside with ROA. This will assist determine the effectiveness of different investment allocation on financial performance.

- **Bonds**

The research will examine Bonds as a crucial independent variable to measure their impact on the Return on assets (ROA). In the financial statement disclosures of insurance companies, bonds are classified into several categories: sovereign, corporate, and Islamic (Sukuk). Bonds under these categories are known for their stable nature and predictable income, making them attractive to investors, particularly insurance companies, to mitigate risks and ensure constant income cash flow (Zunino et al., 2012).

Providing a comprehensive bond analysis will involve indicating the annual bond ratio for each insurance company, which will assist in understanding the relationship between invested bonds and the insurance companies' Return on Assets (ROA).

- **Managed Funds**

This study includes managed funds as an independent variable affecting the Return on Assets (ROA) of insurance companies in Qatar. Managed funds are directed by professionals with high investment experience, allowing them to make decisions based on deep market analysis. ([Sharpe, 1966](#)). The research will obtain managed fund ratio by calculating the percentage of total assets allocated to managed funds. Analyzed this annually computed ratio will explore how managed fund investments influence the financial performance of Qatari insurance companies.

- **Real Estate**

One of the independent variables of this research is real estate investment, which typically involves investing in properties like land, commercial buildings, and infrastructure projects. These investments provide stable income via rental yields and capital appreciation over time, enhancing the value of the company's assets. ([Georgiev, 2003](#)). This study will calculate the real estate ratio and the real estate value as a percentage of overall assets per year for each company. The real estate ratio highlights real estate involvement in the financial performance of Qatari insurance companies.

- **Equities**

The current study considers equities a significant independent variable influencing Qatari insurance companies' ROA. The financial statement disclosures of insurance companies are not unified; therefore, they contain several classifications for equities like quoted and unquoted shares, private equity, and local and foreign shares. In 2023, the Qatar Central Bank required all insurance companies to adhere to IFRS 17, resulting in the addition of new classifications to the existing ones: Fair Value Through Profit or Loss (FVTPL) and Fair Value Through Other Comprehensive Income (FVTOCI). To obtain an inclusive equities analysis, the current study aggregated the equities in all categories to identify the annual total equity for each insurance company. Consequently, this indicates the

percentage of the company's asset allocation to equity investments. This ratio assists in determining how effectively investing in equities contributes to the companies' financial performance (ROA).

III. Control Variables

The research analysis involves control variables—QCB Deposit Interest Rate (INT_RAT), Interest income (INT_INC), Dividends income (DIV_INC), Rental income from investment properties (REN_INC), Net Investment Income (NII), Other Operating Income (OOI), and Gross Written Premiums which measure the insurance companies' size (GWP)—are included in the subgroup models to offer more comprehensive perspective of the determinants impacting the financial performance of Qatari insurance companies. These factors hold significant importance to the research analysis as they represent various dimensions of the companies. The INT_RAT represents the external economic factors and their impact on the financial performance, reflecting the QCB policy that affects several investment assets. The GWP represents the size of insurance companies, which indicates the market position of the insurance companies. While the OOI and NII illustrate the additional income generated from investments and operations to obtain broader returns sources. The INT_INC, DIV_INC, and RNT_INC show how financial performance is influenced by income collected from investments in fixed deposits, bonds, managed funds, real estate, and equities. The inclusion support of these factors as a control variable supports the allocation model by providing a clearer understanding of the relationship and offering comprehensive details. These comprehensive techniques emphasize a more robust analysis of the relationship between insurance companies' financial performance.

3. Econometric specification

To test the impact of investment allocation on the financial performance of insurance companies in the Qatar Stock Exchange, the research will estimate a liner regression model as follows:

3.1 Allocation Model

The primary model of the research will concentrate on the relationship between four of the investment variables (FD, BO, MF, and RE) and the ROA, as reflected in the following equation:

$$ROA_{it} = \beta_0 + \beta_1 FD_{it} + \beta_2 BO_{it} + \beta_3 MF_{it} + \beta_4 RE_{it} + \varepsilon_{it}$$

3.2 Subgroup Models

Five subgroup models are created to explore in greater depth the individual impact of different investment assets and other related controlling variables like (INT_RAT, INT_INC, DIV_INC, REN_INC, GWP, NII, and OOI) on the profitability of insurance companies. These subgroup models provide comprehensive insights and ensure that small sample sizes and multicollinearity do not affect the analysis.

- **EQ Subgroup Model**

$$ROA_{it} = \beta_0 + \beta_1 EQ_{it} + \beta_2 INT_RAT_{it} + \beta_3 DIV_INC_{it} + \beta_4 GWP_{it} + \beta_5 NII_{it} + \beta_6 OOI_{it} + \varepsilon_{it}$$

- **BO Subgroup Model**

$$ROA_{it} = \beta_0 + \beta_1 BO_{it} + \beta_2 INT_RAT_{it} + \beta_3 INT_INC_{it} + \beta_4 GWP_{it} + \beta_5 NII_{it} + \beta_6 OOI_{it} + \varepsilon_{it}$$

- **FD Subgroup Model**

$$ROA_{it} = \beta_0 + \beta_1 FD_{it} + \beta_2 INT_RAT_{it} + \beta_3 INT_INC_{it} + \beta_4 GWP_{it} + \beta_5 NII_{it} + \beta_6 OOI_{it} + \varepsilon_{it}$$

- **MF Subgroup Model**

$$ROA_{it} = \beta_0 + \beta_1 MF_{it} + \beta_2 INT_RAT_{it} + \beta_3 INT_INC_{it} + \beta_4 GWP_{it} + \beta_5 NII_{it} + \beta_6 OOI_{it} + \varepsilon_{it}$$

- **RE Subgroup Model**

$$ROA_{it} = \beta_0 + \beta_1 RE_{it} + \beta_2 REN_INC_{it} + \beta_3 GWP_{it} + \beta_4 NII_{it} + \beta_5 OOI_{it} + \varepsilon_{it}$$

Where:

- **ROA** = Return on Assets Ratio
- **EQ** = Equities to Total Investment Ratio
- **FD** = Fixed Deposits to Total Investment Ratio
- **MF** = Managed Funds to Total Investment Ratio
- **RE** = Real Estate to Total Investment Ratio
- **BO** = Bonds to Total Investment Ratio

- **INT_RAT** = QCB Deposit Interest Rate
- **INT_INC** = Interest Income
- **DIV_INC** = Dividends Income
- **REN_INC** = Rental Income from Investment Properties
- **GWP** = Gross Written Premiums – Insurance Size
- **NII** = Net Investment Income
- **OOI** = Other Operating Income
- β_0 = Constant
- ε = Error Terms
- $it = i$: Insurance Companies ; t = Time Period

3.3 Justification for Model Division

This research studies the impact of several investment allocations on the financial performance of listed Qatari insurance companies across the five years. The examined variables, including equities, fixed deposits, managed funds, real estate, and bonds, are all part of the same investment portfolio within the selected insurance companies. However, several factors related to these investment assets affect the ROA. The main model reflects the allocation of different types of assets, representing the valuation of these assets. Therefore, the subgroup models combine variables like INT_INC, DIV_INC, and REN_INC, which examine the income generated by these assets, differing from their market value. Similarly, Smiyatum et al. (2021) explored the same variables' impact on insurance companies' performance. Moreover, for a more comprehensive view, the subgroups include variables such as GWP, NII, and OOI, which focus on investment performance and financial health, as Morara and Sibindi (2021) studied. Meanwhile, INT_RAT reflects the economic environment, which has also been examined by [Tian et al. \(2019\)](#).

In addition, Companies operate and invest primarily within the same economic environment and face similar macroeconomic factors, meaning that the country's regulations and market conditions uniformly impact their investment strategies. This,

ailing Morora and Sibindi's (2021) study, determines the effect of macroeconomic factors such as interest rates on the insurance companies' performance.

Moreover, the research is restricted with a limited sample size, covering a study period of five years, due to data availability and the small size of the Qatari insurance market. This limitation increases the risk of identifying the impact of these investments on the ROA rather than including border variables. The interrelationship between the variables is the key reason for the multicollinearity observed in the research analysis. (Mason & Perreault, 1991).

To address these challenges, Hove (2017), Das (2019), Guizan (2020), and Alshubiri (2021) suggest that to handle multicollinearity in a regression model, mainly when dealing with interrelated variables, these can be separated into different models. This research model is divided into an allocation model and a subgroup model to examine the impact of investment allocation on ROA. This analytical structure takes into consideration these economic realities, addresses statistical issues like multicollinearity, increases the reliability of the outcomes, and captures the accurate relationship between investment allocations and financial performance.

3.4 Methodology Approach

Following Dhiab's (2021) study and recognizing the research variables, data will be collected from multiple sources to construct a panel dataset that allows for the analysis of both cross-sectional and time-series elements. This model allows researchers to address more issues than possible with pure cross-sectional or time-series data alone (Simonetta & Alita, 2014; Croissant & Millo, 2008). The study will investigate panel data, including observations from several variables (equities, fixed deposits, managed funds, real estate, and bonds) across five different companies (QATI, DOHI, QGRI, AKHI, and QISI) reflecting the cross-sectional elements. In addition, the time-series elements represent the five-year period from 2019 to 2023. Therefore, the Fixed Effect model (FE) and Random Effect (RE) will be used to analyze the panel data.

I. Fixed Effect Model

In panel data analysis, the Fixed Effect model (FE) is essential to account for unobserved variables that could affect the dependent variable within a single entry that has not changed over a period of time, like person, company, or country. This model is useful to deeply focus on the impact of the variables that changed over time across several entities by eliminating the unchangeable elements to confirm that the relationship between the dependent variable and independent variables are not influenced by these unobserved heterogeneities ([deHaan, 2021](#)). The formula of the fixed effect model can be expressed as :

$$y_{it} = \alpha_i + \beta_0 + \beta_1 x_{1,it} + \beta_2 x_{2,it} + \dots + \beta_k x_{k,it} + \varepsilon_{it}$$

This model assumes that no cofounder variables remain stable over time across several entities. Additional to the strict homogeneity, which is referred to in the equation by error (ε_{it}) inside each entity, are not correlated with the independent variables to ensure that removed variables do not prejudice the effects displayed by the model ([Hill et al. 2020](#)).

II. Random Effect Model

In contrast to the Fixed Effect (FE) model, the Random Effect (RE) model can estimate the impact of the variables both within and between the entity. Moreover, it assumes that the differences across the entities are random and uncorrelated with the independent variables within the model. Therefore, the RE model expands the FE model by combining the μ_i to the equation, where both the ε_{it} and μ_i are normally distributed with zero mean. While the variances of random effects σ_{μ}^2 and error terms σ_{ε}^2 are constant over time and within the entities ([Borenstein et al., 2010](#)). As shown in the below equation:

$$y_{it} = \beta_1 x_{1,it} + \beta_2 x_{2,it} + \dots + \beta_k x_{k,it} + \mu_{it} + \mu$$

Where:

$$\mu_{it} = \varepsilon_{it} + \alpha_i - \mu$$

III. Hausman Test

The Hausman test is applied to choose between the (FE) or the (RE) model. It assesses the null hypothesis, which suggests that the Random Effect model is a suitable choice

due to the lack of correlation between the entity effect and the independent variables. While the alternative hypothesis supports the (FE) model, assuming that rejecting the null hypothesis indicates the availability of the correlation within the effect and the regressors, therefore justifying the employment of the (FE) model (Kanters, 2021). In another word, the reliability of the Random Effect is considered to be higher, while the (FE) reflects high efficiency compared to the Random Effect when there is no significant variance (LV et al., 2015).

4. Data

4.1 Descriptive Statistics

Descriptive analysis is used to summarize the essential characteristics of the dataset to build a fundamental base for further statistics examination (Smith, et al., 2011). In quantitative studies, descriptive analysis measures the central tendency, such as mean, median, and mod. Moreover, it measures metrics like standard deviation and the spread data in a range of minimum and maximum value (Murphy, 2021). The dataset contains data from five insurance companies from 2019 to 2023, with a total of 25 observations for each variable. The Analysis summarized as dependent variable ROA and main independent variables of (FD, BO, MF, RE, EQ) along with control variables of (INT_RAT, INT_INC, DIV_INC, REN_INC, GWP, NII, OOI), as presented in table 3.1 below:

• **Table 3.1:** Summary Statistics

Variables	Mean	Std. deviation	Minimum	Maximum
ROA	0.045	0.103	- 0.218	0.262
EQ	0.191	0.099	0.000	0.402
BO	0.151	0.203	0.000	0.569
FD	0.260	0.153	0.000	0.534
MF	0.027	0.035	0.000	0.108
RE	0.370	0.279	0.000	1.000
* INT_RAT	2.950	2.069	1.00	5.750
* INT_INC	128.00	246.00	0.32	720.00
* DIV_INC	27.70	44.80	1.37	225.00
* REN_INC	28.60	31.90	4.67	117.00
* GWP	2,660.00	4,300.00	296.00	12,800.00

* NII	222.00	390.00	7.14	1,290.00
* OOI	-158.00	389.00	- 1,410.00	88.20

Table 3.1: Present the Statistical Summary obtained from sample insurance companies' annual reports from 2019 to 2023. * All Values are presented in QAR millions and computed using STATA/ES 17.

Overall, the above table indicates that the financial performance (ROA) of listed insurance companies in Qatar demonstrates a positive net income on average of 4.54% across the five years and a standard deviation of 10.25%. This highlights fluctuation in profitability within a range of -21.81% to 26.19%. Investment in equities shows mild volatility among the companies, with an average rate of 19.07% and a 9.93% standard deviation. Bonds have a mean of 15.14%, with a high standard deviation reaching 20.29%, suggesting substantial variability in bond holdings. The fixed deposit investments demonstrate a high average rate of 26.01% and a standard deviation of 15.26%, reflecting a preference toward stable investment and different investment strategies. Investment in managed funds displays the lowest variability and standard deviation of 10.80% and 3.49%, respectively, recording the smallest average investment ratio across the insurance companies driven by conservation strategy. Lastly, real estate investments underscore high fluctuation, with a range of 1.89% and 100%, in addition to a mean rate of 37.04% and the highest standard deviation across the investment categories at 27.91%.

Moreover, the control variables offer critical insights into the research. The wide fluctuation in INT_RAT, ranging from 1 to 5.750, influences investment performance, paralleling the variation in INT_INC, which averages 128 million. The maximum value of 12,800 million in GWP suggests substantial disparity in market share among insurance companies, indicating that some companies outperform others. Despite an average of 222 in NII, the OOI raises concerns about the exhausting resources in supporting operations at some insurance companies, with a negative mean of -158 million.

Digging deeper, the ROA at QGR determines the highest negative mean of -6.14%, reflecting poor performance driven by high volatility in investment in fixed deposits and real estate. In contrast, QII recorded the highest positive ROA mean of 20.15%, indicating better investment allocation strategies supported by a high portion of stable assets, such as fixed deposits and real estate investments. Moreover, equities allocation witness notable fluctuations among the companies. DOH holds the highest mean of 30.26%.

While QIC illustrates a low-risk investment strategy by having a large portion of its investments in bonds, with a mean of 52.83%, contributing to its lower return of 0.4240%. Despite the absence of investment in managed funds, QII's fixed deposit investments record a 41.07% mean, providing consistent returns and avoiding management fees, positively affecting their financial performance. QGR and AKI allocate significant portions of their investment portfolio to real estate, with means of 67.20% and 52.71%, respectively, coupled with standard deviations of 25.22% and 26.68%, indicating high volatility across the five-year period, as presented in Appendix A.

4.2 Herfindahl - Hirschman Index

Furthermore, Herfindahl – Hirschman Index determines the market concentration to understand the level of diversification and systematic risk within the portfolio (Huang et al., 2024). The Lower HHI closer to zero, the more portfolio diversification (Peleckis, 2022), among the five insurance companies for the period of five years from 2019 to 2023, which is demonstrated in the following table 3.2:

• **Table 3.2:** Herfindahl - Hirschman Index

Years	AKT	DOH	QIC	QGR	QII
2019	1.0000	0.2747	0.3606	0.2874	0.3764
2020	0.3649	0.2408	0.4169	0.7147	0.3838
2021	0.3850	0.2210	0.3795	0.7200	0.3691
2022	0.3535	0.2230	0.3740	0.7179	0.3589
2023	0.3122	0.2286	0.3763	0.4760	0.3930

Table 3.2 shows the Herfindahl—Hirschman Index estimated from the annual report's selected sample of Qatari insurance companies.

The Herfindahl—Hirschman Index (HHI) analysis shows significant shifts for AKT and QGR, particularly from 2019 to 2020, reflecting a lack of investment diversification within these companies. In insurance companies, the higher portfolio HHI indicates high systematic risk, which affects financial performance and company stability. However, DOH QIC and QII demonstrate HHI closer to zero, an average of 0.23, 0.38, and 0.37, respectively, indicating strong allocation strategies depending on a high level of diversification to enhance financial performance and mitigate potential risk.

4.3 Correlation Analysis

The following Table 3.3 displays the correlation matrix for the linear relationship between the dependent and independent variables, measured by coefficients ranging between +1 and -1. A strong positive relationship is indicated by coefficients closer to +1, and a strong negative relationship is closer to -1, while a zero coefficient shows no relationship among the variables (Coolidge, 2020).

• **Table 3.3:** Pair-wise Correlation Matrix

	ROA	EQ	BO	FD	MF	RE	INT RAT	INT INC	DIV INC	REN INC	GWP	NII	OOI
ROA	1												
EQ	-0.26	1											
BO	-0.26	-0.20	1										
FD	0.65*	-0.03	0.05	1									
MF	-0.16	0.35	0.40	0.02	1								
RE	-0.05	-0.23	-0.73*	-0.57*	-0.55*	1							
INT RAT	0.002	0.15	0.049	0.12	-0.04	-0.15	1						
INT INC	-0.20	-0.38	0.93*	0.08	0.21	-0.61*	0.03	1					
DIV INC	-0.28	-0.17	0.24	-0.42	-0.04	0.12	-0.13	0.24	1				
REN INC	-0.34	-0.03	0.28	-0.46	-0.09	0.07	-0.24	0.28	0.66*	1			
GWP	-0.21	-0.37	0.92*	0.10	0.24	-0.62*	-0.09	0.92*	0.22	0.24	1		
NII	-0.22	-0.39	0.93*	0.09	0.20	-0.61*	-0.09	0.94*	0.22	0.25	0.97*	1	
OOI	0.25	0.01	-0.49	0.06	-0.20	0.34	-0.58*	-0.42	-0.11	0.05	-0.27	-0.25	1

Table 3.3 shows the Correlation Matrix of the selected sample of Qatari insurance companies computed using STATA/ES 17.* High Correlation values

The above table shows various significant relationships across the variables. There is a strong positive relationship between (ROA) and (FD) with a correlation of 0.65, indicating that an increase in investments in fixed deposits correlates with increased profitability for the company. Meanwhile, the other independent variables indicate weak positive correlations, such as a correlation of 0.05 between investments in (FD) and (BO). Conversely, there are strong negative relationships between (BO) and (RE), and (MF) and (RE), with coefficients of -0.73 and -0.55, respectively. These relationships suggest that higher investments in bonds and managed funds are related to lower investments in

real estate. This strong negative relationship could possibly indicate multicollinearity issues, which may increase the sensitivity of the regression model and affect the results. The correlation matrix also determines the relationships across the control variables. BO indicates a strong positive relationship with INT_INC, GWP, and NII, with correlations of 0.939, 0.928, and 0.933, respectively, highlighting the crucial role in driving returns from BO investments. In contrast, RE has a strong negative relationship with these same variables, reflecting lower returns from RE investment compared to BO investment. In other words, more investment in RE might lead to lower income from insurance activities and interest from assets. Furthermore, the matrix shows a strong positive relationship between GWP and NII, reflecting that larger insurance companies tend to have more funds available for investment.

5. Chapter Summary

Chapter three provides an overview of the empirical methodology and data collection procedures used to examine the financial performance of listed insurance companies in Qatar. The chapter starts by highlighting the research approach and sample selection of five insurance companies from 2019 to 2023, followed by an explanation of research variables. In addition, it underlines the econometrics models for both allocation and subgroup models and describes the methodology approach that will be used to analyze these models. Finally, the data section introduces the descriptive analysis of the research. The next chapter will illustrate the research findings and discussion.

CHAPTER FOUR: EMPIRICAL FINDINGS & DISCUSSIONS

1. Introduction

This chapter will explore the empirical findings and analysis of the relationship between Investment allocation, including investments in fixed deposits, bonds, managed funds, real estate, and equities, and the financial performance measured by the ROA of the listed insurance companies in Qatar. The research employs balanced panel data, with the time-series section spanning from 2019 to 2023 and the cross-sectional section comprising five insurance companies. The analysis focuses on two econometric models applied in the research: the Random effect and the Fixed effect model. Each model provides various techniques to analyze the panel data that is conducted using STATA/SE 17 and IBM SPSS statistics software, and diagnostic tests will be used to confirm the reliability of the chosen model. Moreover, the chapter will discuss the utilization of hypothesis testing to evaluate the statistical significance of the relationship between investment allocation and the profitability of insurance companies. In addition, chapter four will provide a comprehensive discussion of the empirical results in relation to the research hypotheses and theoretical and practical implications within the framework of Qatari's insurance sector.

2. Diagnostic Test

The model assumptions will be verified using diagnostic tests to verify the validity and reliability of the model. Moreover, the assumption examination will ensure that the research results are practically significant and statistically robust ([Hansen, 2022](#)). In addition, it is crucial to consider the small sample size and the possibility of multicollinearity between the variables. This was addressed in the analysis by dividing the model into allocation models that examine the impact of investments in fixed deposits, Bonds, managed funds, and real estate on ROA, while the subgroup models allow for a deeper and more comprehensive understanding of each investment type's impact on the insurance companies. This approach enhances the robustness of the estimation for the individual investment class on financial performance and aligns with the study of

Kamwaro (2013), Kimeu (2015), Hove (2017), Abraham (2018), Das (2019), Guizan (2020), and Alshubiri (2021).

2.1 Statistical Fit

This research involves entering a constant term in the regression model, ensuring the average error value (ε_{it}) is zero across all observations, indicating that the model fits well. Generally, this assumption is met when the constant term (β_0) is included in the formula, which balances the equation. Consequently, this assumption is met in research models.

2.2 Heteroskedasticity Test

The Heteroscedasticity Test is essential for verifying that the variance of the error terms in the regression model is stable across all observations. The importance of employing this test is to ensure the reliability of the results (Giraitis et al., 2024). Heteroscedasticity could be detected using the Breusch and Pagan test, which assists in indicating whether the error variances in the regression model are constant or change within the dataset. Detecting heteroskedasticity in the regression model violates the assumption and leads to poor estimation (Hansen, 2022). Accordingly, this research used the Breusch–Pagan Test to indicate the heteroskedasticity of the model based on the following hypotheses:

H_0 : The Variance in the residuals is constant (Homoskedasticity)

H_1 : The Variance in the residuals is not constant (Heteroskedasticity)

• **Table 4.1:** Breusch–Pagan Test

Model	Chi-Squared	P-Value	Breusch–Pagan Test Conclusion
Allocation Model	3.87	0.0491	There is Heteroscedasticity
EQ Subgroup Model	1.69	0.1943	No Heteroscedasticity
BO Subgroup Model	1.51	0.2197	No Heteroscedasticity
FD Subgroup Model	0.02	0.8869	No Heteroscedasticity
MF Subgroup Model	1.91	0.1666	No Heteroscedasticity
RE Subgroup Model	0.92	0.3374	No Heteroscedasticity

Table 4.1: Shows the Breusch–Pagan Test for Allocation Model and Subgroup Models estimated from the selected sample of Qatari insurance companies computed using STATA/ES 17.

As shown in Table 4.1, the allocation model's p-value is 0.0491, and the chi-squared value is 3.87. The results reflect a slightly lower p-value, indicating the existence of

heteroscedasticity in the main model, thus leading to the rejection of the null hypothesis. A study by [Petersen \(2008\)](#) shows that heteroscedasticity in a model can be addressed through a robust standard error method, which is used in this research for the allocation model. On the other hand, the subgroup models have high p-values that exceed the significance level of 0.05 and are consistent across all subgroup models, indicating no heteroskedasticity issues within the models. Therefore, we fail to reject the null hypothesis and meet the assumption.

2.3 Autocorrelation Test

In the regression analysis, adopting an autocorrelation test ensures that the errors are independent of one another in the model, meaning the covariance between any two errors is equal to zero. In other words, autocorrelation occurs when the errors in one period are correlated with errors in another period, leading to inaccurate estimations ([Baltagi, 2005](#)). The test helps to confirm that the error terms in the regression model do not exhibit relatedness over time, which is crucial for obtaining accurate results ([Halunga et al., 2017](#)). To determine autocorrelation in this research, the Durbin-Watson test was applied to the allocation and subgroup models to examine the following hypotheses:

H_0 : There is no Autocorrelation

H_1 : There is Autocorrelation

• **Table 4.2:** Durbin-Watson Test

Model	F-Statistic	R Square	Durbin Watson Test
Allocation Model	8.251	0.623	1.401
EQ Subgroup Model	1.343	0.309	0.865
BO Subgroup Model	0.46	0.133	1.203
FD Subgroup Model	3.569	0.543	1.925
MF Subgroup Model	0.485	0.139	1.200
RE Subgroup Model	1.222	0.243	1.423

Table 4.2 shows the Durbin-Watson Test for Allocation Model and Subgroup Models estimated from the selected sample of Qatari insurance companies, computed using SPSS.

The allocation model displays statistical significance, as indicated by the F-Statistic and R Square values of 8.251 and 0.623, respectively, which increase confidence in the model. However, the Durbin-Watson result of 1.401 is lower than the ideal value of 2,

indicating positive autocorrelation in the model and a violation of OLS assumptions. Among the subgroup models, the FD subgroup model records the highest F-statistic of 3.569 with a Durbin-Watson value of 1.925, suggesting no significant autocorrelation, While the remaining subgroup models of EQ, BO, MF, and RE show positive autocorrelation. This implies that we failed to reject the null hypothesis only in the FD subgroup model and were rejected in the other models. Therefore, employing Robust OLS regression is a step taken to address the autocorrelation issues and manage the violations of assumptions, providing a more reliable analysis.

2.4 Multicollinearity Test

The multicollinearity test is used to determine high correlations among variables in a regression model, which increases the difficulty of identifying the individual impacts of independent variables on the dependent variable, leading to less reliable regression results (Brooks, 2019). To detect multicollinearity, researchers use the Variance Inflation Factor (VIF), a VIF greater than 10 indicates high multicollinearity and challenges the assumption.

• **Table 4.3:** Multicollinearity Test

Model	Allocation Model	Subgroup Models
Variable	VIF	VIF
EQ	1.160	1.220
BO	4.840	17.240
FD	4.170	1.090
MF	2.260	1.160
RE	10.890	1.890

Table 4.3: Shows the Multicollinearity Test for the Allocation Model and Subgroup Models estimated from the selected sample of Qatari insurance companies computed using STATA/ES 17.

The above table presents the VIF results depending on Robust OLS regression for the allocation model and the main independent variables in the subgroup model. The range of 1.160 and 4.840 is lower than the ideal value of 10 for the variables (EQ, BO, FD, and MF), while the RE variable shows a slightly higher value of 10.890, which can be considered acceptable. Similarly, most of the main variables in the subgroup models also have acceptable VIF, except for BO in the Subgroup models with the value of 17.240, indicating a level higher than the ideal value. However, O'Brien (2007) and Salmerón et

al. (2017) discussed that a VIF value above 10 could be acceptable in certain contexts, such as small sample size or in models like portfolio theory, where research variables naturally face correlated behavior.

3. Model Selection

Selecting a statistical model is a critical step in econometric analysis. In Panel data, identifying the most appropriate model, whether it be a Fixed Effect (FE) model or a Random Effect (RE) model, requires applying the Hausman test to determine which is more applicable to the research. Constantly, several studies have adopted the (FE) model in their regression analysis, such as Ismail (2013), Hove (2017), and Abraham (2018), while Burca & Batrinca (2014) used the (RE) model to analyze the company's performance.

3.1 Hausman Test

The Hausman test is a statistical assessment adopted in panel data analysis to determine the most appropriate model for the regression. Particularly, the test helps decide between the (RE) model or the (FE) model by indicating the exist of individual errors are correlated to the regression by examine the below hypotheses:

H_0 : Random Effect Model is Appropriate

H_1 : Fixed Effect Model is Appropriate

• **Table 4.4:** Hausman Test

Model	Chi-Sq. Statistic	P-Value	Hausman Test Decision
Allocation Model	11.990	0.017	Fixed Effect Model
EQ Subgroup Model	4.150	0.126	Random Effect Model
BO Subgroup Model	0.990	0.609	Random Effect Model
FD Subgroup Model	5.850	0.054	Random Effect Model
MF Subgroup Model	0.210	0.899	Random Effect Model
RE Subgroup Model	3.400	0.065	Random Effect Model

Table 4.4 shows the Hausman Test for Allocation Model and Subgroup Models estimated from the selected sample of Qatari insurance companies, computed using STATA/ES 17.

The above table indicates a significant p-value of 0.017 for the allocation model, which is less than 5%, meaning that it rejects the null hypothesis and suggests that the (FE) model is more appropriate for the allocation model. Moreover, the p-values for the subgroup

models range from 0.054 in the B0 subgroup model, which is slightly higher than the significance level, to 0.899 in the MF subgroup model, indicating a failure to reject the null hypothesis for all subgroup models (EQ, BO, FD, MF, and RE). This leads to adopting the (RE) model, which offers a better understanding of their impact on the ROA. Additionally, the RE model analyzes variables within and across the entities, providing a comprehensive examination. Meanwhile, the FE model aims to analyze variation within companies over time.

Deciding the most applicable model for the panel dataset required a reliable tool like the Hausman test. Accordingly, the (FE) model was selected as the most appropriate method for the allocation model due to its effectiveness in managing panel data by observing the differences within the company during the study period. Particularly where Qatari insurance companies share similar characteristics, such as operating under the same regulatory framework and within a small industry. The subgroup models implemented the (RE) model to provide comprehensive analysis, considering the variation between and within the companies. These two approaches are more efficient than the pooled OLS model in ensuring the analysis is broad and more tailored.

4. Empirical Results

This section of the research aims to explore the relationship between various investment allocations and the financial performance of insurance companies listed in Qatar by presenting the results of a regression model. The analysis of the regression model conducted on both data the allocation model, which includes the whole variables focusing on investments in EQ, FD, MF, and RE, on ROA, and the subgroup models, that examines the individual relationship of these investment variables along with related control variables and ROA. This approach deeply explores the impact of asset classes on the profitability of insurance companies in Qatar. In this section, we will review the beta coefficients of the regression models based on their sign (positive/Negative) and discuss the strength and direction of the relationships between the variables and how they support the research hypotheses.

4.1 Allocation Model Regression Analysis

The Fixed Effect model was employed to determine the relationship between investments in (BO, FD, MF, and RE) on the ROA of listed insurance companies in Qatar, as indicated by the result of the Hausman test. However, the model is modified using the Robust Fixed Effect model to address the autocorrelation and multicollinearity.

• **Table 4.5:** Robust Fixed Effect Regression – Allocation Model

Variable	Coefficient	Std. Error	T-Value	P-value
BO	0.809	0.453	1.790	0.149
FD	0.792**	0.264	3.010	0.040
MF	0.223	0.449	0.500	0.646
RE	0.516**	0.167	3.090	0.037
_cons	-0.481	0.195	-2.470	0.069
Dependent variable	ROA			R-squared:
Observations	25			Within 0.403
F	47.51			Between 0.042
Prob > F	0.0013			Overall 0.075

Table 4.5: Shows Results of Robust Fixed Effect Regression – Subgroup Models, computed using STATA/ES 17.

***Significant at 1%, **Significant at 5%, *Significant at 10%

According to the Allocation model, it is statistically significant, with a p-value of 0.0013, which is lower than the significant level of 5%, and an F-statistic of 47.51, indicating that the independent variables collectively have a significant impact on the dependent variable, ROA. Moreover, the R-squared shows that the independent variables examine 40.30% of the variability within the companies. While the between R-squared shows that 4.2% of the variability in ROA is based on other factors not included in the model, such as macroeconomic variables.

The P-value determines the significant level and how it influences the outcome. While the R-squared value explains how effectively the model is accounting for the changes in the data (Brooks, 2019). Despite the positive relationship between the investment in BO and ROA, reflected in a coefficient of 0.809, the p-value of 0.149 presents an insignificant result, suggesting that the increase in BO values does not necessarily impact the profitability of insurance companies. Therefore, we failed to reject the H_0^5 due to a lack of supporting evidence. Similarly, the MF investment shows a positive insignificant

coefficient of 0.899 and a t -value of 0.646, resulting in failure to reject the H_0^3 . This suggests that there is not enough evidence to conclude that managed funds could enhance the insurance companies' ROA. On the other hand, investment in FD illustrates a statistically significant and positive relationship with the profitability of insurance companies, with a coefficient of 0.792 and a p -value of 0.040. This reflects that there is a supporting indication that FD contributes to improving the ROA; therefore, we reject the H_0^2 . Moreover, RE also indicates a positive and significant result, with a coefficient of 0.516 and p -value of 0.037, leading to the rejection of H_0^4 , implying that RE positively impacts the financial performance of insurance companies.

4.2 Subgroup Models Regression Analysis

According to the Hausman Test result, which suggests that the Random Effects model is the most appropriate for estimating the subgroup models, providing additional insights into the impact of EQ, FD, MF, RE, and BO on the financial performance of Qatari insurance companies. The below table number 4.6 displays the result of the regression model:

• **Table 4.6:** Robust Random Effect Regression – Subgroup Models

Model	Variables	Coefficient	Robust Std. Error	Z-value	P-value
EQ Sub-Model	EQ	-0.4494 [*]	0.2650	-1.700	0.090
	INT_RAT	0.0083	0.0148	0.560	0.577
	DIV_INC	-5.80E-10	3.83E-10	-1.510	0.130
	GWP	5.85E-12	1.81E-11	0.320	0.746
	NII	-1.29E-10	1.91E-10	-0.680	0.497
	OOI	6.99E-11	5.50E-11	1.270	0.203
	Constant	0.1469	0.1088	1.350	0.177
FD Sub-Model	FD	0.4496 ^{**}	0.2194	2.050	0.040
	INT_RAT	-0.0017	0.0143	-0.120	0.907
	INT_INC	1.91E-10	1.48E-10	1.290	0.198
	GWP	-2.79E-12	1.30E-11	-0.210	0.830
	NII	-1.44E-10	1.94E-10	-0.750	0.455
	OOI	5.56E-11	5.08E-11	1.100	0.273
	Constant	-0.0428	0.0153	-2.800	0.005

MF Sub-Model	MF	-0.2617	0.9614	-0.270	0.785
	INT_RAT	0.0081	0.0118	0.690	0.493
	INT_INC	2.45E-10	2.57E-10	0.950	0.341
	GWP	6.71E-12	1.78E-11	0.380	0.706
	NII	-2.40E-10	3.13E-10	-0.770	0.443
	OOI	1.10E-10	7.18E-11	1.530	0.126
	Constant	0.0502	0.0587	0.860	0.392
RE Sub-Model	RE	-0.1078	0.0762	-1.420	0.157
	REN_INC	-8.91E-10	6.64E-10	-1.340	0.180
	GWP	-2.91E-12	8.05E-12	-0.360	0.718
	NII	-3.47E-11	9.84E-11	-0.350	0.724
	OOI	7.92E-11	5.78E-11	1.370	0.171
	Constant	0.1387	0.0843	1.650	0.100
BO Sub-Model	BO	-0.0542	0.3945	-0.140	0.891
	INT_RAT	0.0087	0.0135	0.640	0.522
	INT_INC	2.47E-10	2.74E-10	0.900	0.367
	GWP	5.04E-12	1.50E-11	0.340	0.738
	NII	-2.02E-10	2.76E-10	-0.730	0.465
	OOI	1.08E-10	6.91E-11	1.560	0.118
	Constant	0.0449	0.0523	0.860	0.391

Table 4.6: Shows Results of Robust Random Effect Regression – Subgroup Models, computed using STATA/ES 17.

***Significant at 1%, **Significant at 5%, *Significant at 10%

The EQ subgroup model exhibits a negative coefficient of -0.449, showing a possible declining impact on ROA when concentrating solely on EQ. The p-value of 0.09 indicates that this result is statistically significant. Therefore, we fail to reject H_0^1 , implying an inverse relationship, meaning that the decreases in EQ investment could potentially lead to an increase in ROA. However, there is no sufficient evidence to confirm this impact. Likewise, the INT_RAT displays a positive but insignificant relationship with insurance companies' profitability, with a coefficient of 0.008 and a p-value of 0.58. Furthermore, the other variables in this subgroup model failed to present strong evidence of their effect on ROA.

The FD subgroup model shows a positive and significant relationship between investment in FD and insurance companies' ROA, driven by the coefficient of 0.449 and p-value of 0.04, highlighting the positive influence of FD on insurance companies' profitability. On

the other hand, the INT_RAT demonstrates a negative impact on the ROA, but this is not statistically significant, with a high p-value of 0.907. Similarly, the other variables in the FD subgroup model fail to indicate a meaningful influence on the profitability of Qatari insurance companies.

The MF subgroup model indicates an insignificant negative coefficient of -0.261 with a p-value of 0.79, reflecting a lack of evidence to support MF's negative effect on insurance companies' profitability. Similarly, the INT_RAT illustrates a positive impact on ROA but is not statistically significant, with a coefficient and p-value of 0.0081 and 0.49, respectively. Moreover, the other variables in this model also exhibit non-significant indications of their impact on the insurance companies' profitability.

The RE subgroup model presents a negative coefficient of -0.107 and a p-value of 0.16, which is above the conventional significance level, suggesting that the negative effect of MF on the ROA is not strong enough. Moreover, the other variables in the model also negatively affect the profitability of insurance companies in Qatar. While the RE variable shows a negative impact when examined individually on ROA, this result is insufficient to draw final conclusions about the influences of RE investments on the profitability of insurance companies.

The BO subgroup model displays a negative coefficient of -0.054, reflecting a potential decrease in ROA due to the bond investment. However, this indication is statistically insignificant, meaning that the negative changes in bond investments are not meaningfully related to the financial performance of insurance companies. Moreover, the INT_RAT shows a positive relationship with the ROA by a coefficient of 0.008, but no significant evidence exists to confirm this impact. Additionally, the other variables in the model have p-values above 0.05 significance level, implying that none of these variables significantly impact insurance companies' profitability.

4.3 Overall Comparison Between Expected & Actual Findings

The following table compares the expected and actual influences of different investment allocations on the ROA of Qatari-listed insurance companies, their significance level, and the status of the conducted hypotheses.

• **Table 4.7:** Overall Comparison Between Expected & Actual Findings

Independent Variables	Expected Relationships with ROA	Actual Findings	Level of Significance	Hypothesis Status
Fixed Deposits	Positive (+)	Positive (+)	5% Significant Level	Reject
Managed Funds	Positive (+)	Positive (+)	Not Significant	Fail to Reject
Bonds	Positive (+)	Positive (+)	Not Significant	Fail to Reject
Real Estate	Positive (+)	Positive (+)	5% Significant Level	Reject
Equities	Positive (+)	Negative (-)	10% Significant Level	Fail to Reject

Table 4.7 compares Expected & Actual Findings computed using STATA/ES 17.

5. Empirical Findings Discussions

5.1 Investments in Fixed Deposits

The regression results of the allocation model indicate that FD investment has a strong and significant relationship with ROA, with a coefficient of 0.792 and a p-value of 0.04. The positive relationship indicates that increasing the allocation of investments in fixed deposits by one unit contributes to a significant enhancement in the profitability of Qatari insurance companies by 0.792 units. When we transfer to the FD subgroup model, which aims to provide a comprehensive view of the influence of FD on ROA by including related variables like INT_RAT, INT_INC, GWP, NII, and OOI, the findings suggest that the subgroup model supports the allocation model. It indicates a strong positive significant coefficient of 0.450 with a p-value of 0.04, reflecting the important role of FD investment in driving better financial performance for insurance companies across the past five years (2019–2023). The other variables in the FD subgroup model have a limited insignificant influence on ROA. Notably, INT_RAT exhibits a slightly negative impact. The short-term impact drives this inverse relationship to reallocate the investment portfolio, where funds are transferred from fixed deposits to more liquid assets in response to market conditions aiming to provide higher returns. Additionally, the adjustment period for holding short-term FD is not reflected immediately in an enhanced ROA. As a result, the provisional inverse

impact does not negate the FD investment's positive influence on the insurance companies' long-term profitability.

The strong positive impact of FD on the ROA is compatible with the research established by [Shikwe \(2016\)](#), [Abraham \(2018\)](#), and [Ahmed \(2022\)](#), all of which witnessed a positive impact of fixed deposits on the financial performance of insurance companies in Kenyan, Ethiopia, and GCC countries. Moreover, FD investment results align with the LDI theory, which focuses on matching investment returns with a company's liabilities. FD provides stable and predictable returns, making them applicable to meet an insurance company's obligations. Due to their low risk, FD's effectiveness makes them a preferred investment choice among insurance companies. Furthermore, FD supports insurance regulations and the characteristics of the Qatari market, as well as macroeconomic factors that increase the demand for fixed deposits, especially during the study period when interest rates were rising. This led to a higher portion of investment allocation in fixed deposits, which improved the profitability of Qatari insurance companies.

5.2 Investments in Bonds

The data analysis of the allocation regression shows a BO investment coefficient of 0.809 with a p-value of 0.149, indicating an insignificant positive impact on the financial performance of insurance companies during the study period. This consists of the main concept of bonds, offering stable returns with lower risks. Nevertheless, the relationship between BO investment and ROA in the BO subgroup model changes to a negative coefficient of -0.054, with a statistically insignificant p-value of 0.891. This shift is due to the addition of other related variables, such as INT_RAT, INT_INC, GWP, NII, and OOI, which captured a large portion of the profitability driven by BO investment without having a significant or notable effect on ROA. Moreover, this negative impact could be due to market conditions during the study period from 2019 to 2013, where the border interest rate environment decreased the value of held bonds. This result aligns with [Shikwe \(2016\)](#), who observed similar results and contrasted them with [Boah and Adu \(2015\)](#) and [Kimeu \(2015\)](#) studies, which found a significant positive impact on financial performance. The differences in results can be attributed to varying market circumstances and regulatory environment in each country. Despising the reduction in bond values regarding

the market conditions, the stable returns via regular coupon payments provided by investment in bonds support the LDI theory, which aims to match investments with insurance companies' liabilities.

5.3 Investments in Managed Funds

The regression analysis of MF investment in the Allocation model shows a coefficient value of 0.223 and a p-value of 0.646, indicating a positive relationship between managed funds and ROA. Although this positive relationship, the lack of significance suggests that evidence is not enough to confirm that the profitability of Qatari insurance companies is driven by managed funds during the study period from 2019 to 2023. In contrast, the MF in the subgroup model indicates a negative coefficient of -0.261 with an insignificant p-value of 0.785. This switch is attributed to reallocation strategies, where the funds from managed funds were transferred to more reliable investments, particularly during the study period, which faced high market fluctuations. Additionally, other related variables, such as INT_RAT, INT_INC, GWP, NII, and OOI, probably overshadow the contribution of MF investment to ROA by providing consistent income for insurance companies, resulting in the observed negative insignificant relationship. At the same time, their impact on ROA is negligible.

The MF investment result in the allocation model relates to the findings of [Zhang \(2015\)](#) and [Kamwaro \(2013\)](#), where they observed a positive impact of MF investment on companies' performance. Also, the findings align with MPT, which focuses on diversification to balance risk and return in a portfolio. This supports the framework of managed funds, which gather funds from investors to invest in a variety of asset types. Despite the positive relationship between managed funds and ROA, this profit is not fully realized due to management fees. In addition, managed funds often face challenges in always outperforming benchmarks, leading to an insignificant relationship and reducing their potential impact on the profitability of insurance companies.

5.4 Investments in Real Estate

The statistical analysis of the Allocation model reveals that real estate investment has a coefficient of 0.516 and a p-value of 0.037, indicating a significant positive relationship between real estate and ROA. This result implies that by increasing investment in real

estate by 1%, the ROA will increase by approximately 0.516%, reflecting a valuable impact on the profitability of Qatari insurance companies from 2019 to 2023. However, the RE subgroup model indicates that the effect of RE investment shifts from a positive and significant impact to a negative but insignificant impact on ROA, with a coefficient of -0.107 and a p-value of 0.157. This shift between the two models is attributed to the enclosure of additional factors such as REN_INC, which measures the income receivable from RE investment rentals, thus reducing the individual impact of RE investment on ROA. Likewise, the remaining variables (GWP, NII, and OOI) exhibit a negative and lack statistical significance impact on the profitability of insurance companies.

However, the slightly negative impact is not statistically significant compared to the allocation model, which emphasizes the strong impact of RE investment on the profitability of Qatari insurance companies. Moreover, the finding is in accordance with the findings of [Kimeu \(2015\)](#), [Shikwe \(2016\)](#), and [Abraham \(2018\)](#), who found similar results of RE investment effectiveness in enhancing the financial performance of Qatari insurance companies, and in contrast with [Kripa and Aljasllari \(2016\)](#) negative impact outcomes. Furthermore, these findings are consistent with SAA theory, highlighting the significance of long-term allocation of a well-balanced asset mix. Increasing the proportion of real estate in the portfolio can enhance profitability, driven by successful diversification strategies that are designed to meet long-term financial goals.

5.5 Investments in Equity

According to the regression result of Equities investment in the EQ subgroup model, the negative coefficient of -0.449 and p-value of 0.090 indicate an inverse relationship between EQ and ROA for the period from 2019 to 2023, reflecting that investing in equities does not contribute positively to the profitability of Qatari insurance companies and could even have a slightly opposite effect. Nevertheless, this finding aligns with [Abraham \(2018\)](#), who also found a similarly negative and insignificant impact of equities on ROA for Ethiopian insurance companies. This contrasts with [Ahmed \(2022\)](#) and [Ismail \(2013\)](#), who witnessed a strong relationship between equities and the financial performance of insurance companies. These outcomes show that while equities are broadly recommended as growth-oriented investments, their impact could vary across different

markets and their response to global economic fluctuations, challenging the conventional view that equities constantly provide reliable positive returns. The insurance sector operates within an interconnected system among different countries to support the reinsurance framework. Additionally, the study period from 2019 to 2020 faced various economic events, such as the COVID-19 pandemic, which influenced the global stock markets. Moreover, the increase in interest rates during the same period shifted investment preferences towards fixed deposits rather than equities, which positively impacted the ROA in the model. However, none of the other related variables show a significant relationship, indicating a lack of contribution to the profitability of insurance companies.

The negative impact of equities on insurance companies' ROA is driven by the characteristic of the Qatari equity market, which is known for its small market size and lower volatility compared to other regions, coupled with regulatory limitations on equity investments. This aligns with the CAPM theory mentioned previously in Chapter Two. The application of CAPM by insurance companies can assist in mitigating the negative impact of equities on financial performance. The theory provides insurance companies with a quantitative framework that allows them to identify equities with higher risk and balance equity investment with various asset classes, thereby enhancing the overall investment portfolio.

5.6 Controlling Variables

The control variables in the study, including INT_RAT, INT_INC, DEV_INC, REN_INC, GWP, NII, and OOI, show low coefficients and lack of significance level in all subgroup models. This is due to the specific characteristics of the financial performance of insurance companies. Despite the importance of their operations and activities, the results indicate that these factors have no direct impact on ROA in the short term. Additionally, the adoption of IFRS 17 during the study period contributed to reducing the effect on ROA. The new standards require gradual recognition of insurance liabilities and revenues, making their influence less noticeable in the short term. This confirms that insurance companies rely on long-term investment strategies and emphasize the LDI theory. Moreover, Qatari insurance companies operate in a relatively stable and less

volatile sector compared to other sectors on the same stock exchange and other insurance sectors in different regions, leading to lower observations on ROA.

6. Chapter Summary

The chapter outlined the process followed to indicate the appropriate regression models for the allocation and subgroup models. Accordingly, the Hausman test used the FE model for the allocation model and the RE model for the subgroup model. The empirical findings provide comprehensive insights into the investment's contribution to the financial performance of insurance companies in Qatar from 2019 to 2023. Fixed deposits were recorded as the most reliable investment, reflecting a significant, strong positive effect on ROA. Similarly, real estate investment positively supports the financial performance of insurance companies. While Managed funds witness insignificant positive impact on the ROA, indicating limited benefit refers to management fees. Additionally, bonds also exhibit an insignificant positive effect on ROA. On the other hand, investment in equities implies an insignificant negative relationship with the ROA. The next and final chapter will provide a final overview of the study, consider the research limitations, address them with suggestions for future research, and offer wider implications and recommendations to enhance the financial performance of listed insurance companies in Qatar.

CHAPTER FIVE: CONCLUSION

1. Introduction

The last Chapter will discuss the research's limitations, highlighting how these restrictions influence the final results and suggesting the need for future research to explore broader databases. Moreover, the chapter will include recommendations and provide practical approaches to enhance investments in fixed deposits, bonds, managed funds, real estate, and equities, thereby improving the financial performance of insurance companies listed on the Qatar Stock Exchange.

2. Research Limitations

Research limitations provide crucial insight into the challenges that influence and restrict the study. First, the research is limited by the availability of data. The research heavily relied on secondary data from insurance companies listed on the Qatar Stock Exchange, which limited the sample size. Additionally, the analysis concentrated on 2019 to 2023, which did not fully capture all listed insurance companies, as some were established after the study's start. Moreover, the Qatar Central Bank mandated the implementation of IFRS 17 standards started in 2019, meaning that prior to this, insurance companies were not required to disclose their investment instruments. This resulted in a five-year moderate study period, analyzing data from only five insurance companies. Second, the small sample size shaped the research methodology, leading to challenges in capturing the relationship between investment allocation and financial performance. This also raised issues of multicollinearity, which imposed the creation of a sub-model to examine the impact of bonds on financial performance particularly.

3. Research Recommendations

- The profitability of the listed Qatari insurance companies is influenced positively by investments in fixed deposits. For this reason, insurance companies should increase their allocation of fixed deposit investments within their portfolio, specifically when raising interest rates.
- Given the positive and insignificant impact of bonds on financial performance, the constant coupon payments support the investment in bonds to meet long-term

liabilities. It is suggested that insurance companies diversify their portfolios by including both short and long-term bonds. Additionally, companies should consider market fluctuations and interest rate trends when selecting bonds.

- The results observed an insignificant positive relationship between managed funds and ROA. This is probably due to the management fees charged by these funds. Therefore, insurance companies should evaluate the associated cost of managed funds and carefully select funds that invest in high-quality asset classes to balance the trade-off between risk and return.
- Real estate investments demonstrate a significant positive impact on insurance companies' profitability. It is recommended that insurance companies raise their allocation to real estate, particularly by investing in properties that generate stable income and provide capital appreciation to achieve long-term financial objectives.
- The Research indicated an insignificant negative impact of equities on the financial performance of Qatari insurance companies. This is due to strict QCB regulations that prevent insurance companies from investing in other insurance companies' equities and the requirement that an insurance company's portfolio must not exceed 30% of equities investment within the Qatar Stock Exchange. Therefore, insurance companies should continuously improve their investment strategies and enhance portfolio diversification, seeking for the best equities that provide higher income rather than following a passive investment strategy.

4. Suggestions for Future Studies

Considering the limitations and recommendations identified in this research, along with Dhiab's (2021) study, which has followed the foundational work. Consequently, there is a need to explore further how the financial performance of insurance companies is influenced by investment allocation.

- Future research should focus on expanding the scope of the dataset by including a diverse range of insurance companies, particularly from GCC countries where similar studies are lacking. This will provide a more comprehensive study with broader comparative insight.

- Expanding the data to include more sectors will enhance future studies by involving other financial institutions like banks, providing a greater understanding of investment allocation strategies within the same region of the study.
- The current study is based on five years, from 2019 to 2023. Using a longer duration in future research will capture wider dimensions like periods of economic expansions and recessions.
- Future studies might explore different research methodologies, adopting qualitative approaches such as case studies and interviews to have a deeper understanding of how investment allocation affects the financial performance of insurance companies. Additionally, advanced econometrics methods, such as SEM and VAR techniques, could address multicollinearity issues.
- Further study might analyze the impact of regulations, specifically the implementation of IFRS 17, to understand how regulatory changes affect investment allocation and financial performance.

5. Final Overall

This study investigates the impact of investment allocation on the financial performance of insurance companies Listed on the Qatar Stock Exchange over the past five years, from 2019 to 2023. Analyzing how various investment classes affect ROA, including fixed deposits, bonds, managed funds, real estate, and equities. The research findings emphasize the significant role of stable investments like fixed deposits and real estate investments in enhancing the profitability of insurance companies. The study also highlighted the necessity of cautious management and selection of equities, along with consideration of investment in managed funds and their associated costs. The insights from this research reach beyond the Qatari insurance sector, providing crucial contributions to explore wider academic research on investment allocation strategies and financial performance within the insurance sector. As the importance of the insurance sector in Qatar boosts in alignment with the evolving global financial landscape, these findings emphasize the critical need to adopt appropriate investment strategies to ensure the allocation of assets that provide sustainability and profitability.

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Appendix

Appendix A: Companies-Wise Summary Statistics

Variable	Mean	Std. deviation	Minimum	Maximum
Company: AKT				
ROA	0.051	0.072	-0.072	0.105
EQ	0.139	0.082	0.000	0.202
BO	0.011	0.024	0.000	0.054
FD	0.313	0.176	0.000	0.418
MF	0.010	0.006	0.000	0.017
RE	0.527	0.267	0.360	1.000
Company: DOH				
ROA	0.032	0.011	0.022	0.049
EQ	0.303	0.034	0.260	0.339
BO	0.150	0.074	0.051	0.246
FD	0.241	0.040	0.198	0.285
MF	0.085	0.021	0.055	0.108
RE	0.221	0.053	0.156	0.284
Company: QGR				
ROA	-0.061	0.094	-0.218	0.015
EQ	0.227	0.147	0.112	0.402
BO	0.056	0.049	0.028	0.143
FD	0.044	0.077	0.008	0.182
MF	0.001	0.002	0.000	0.004
RE	0.672	0.252	0.268	0.839
Company: QIC				
ROA	0.004	0.022	-0.033	0.021
EQ	0.113	0.022	0.090	0.140
BO	0.528	0.026	0.505	0.569
FD	0.293	0.026	0.254	0.326
MF	0.040	0.020	0.029	0.076
RE	0.027	0.007	0.019	0.035
Company: QII				
ROA	0.202	0.036	0.175	0.262
EQ	0.173	0.017	0.155	0.191
BO	0.012	0.007	0.004	0.020
FD	0.411	0.091	0.316	0.534
MF	0.000	0.000	0.000	0.000
RE	0.405	0.093	0.287	0.497

Appendix B: Reflective Learning Statement

Overview

The reflective learning statement aims to evaluate my experience throughout the dissertation process, highlighting how this journey enhanced and polished my academic knowledge and research skills. This statement will discuss the challenges I faced while working on my dissertation, how I addressed them, and the outcome achieved from overcoming these difficulties. This self-assessment will cover the whole process, from topic selection and literature review to data collection, interpretation, and analysis of the results, alongside the personal skills development. Outlining these difficulties led me to question my ability to meet the practical learning objectives held during the process but contributed to achieving them within the dissertation process.

Topic Selection

The motivation behind selecting a dissertation topic related to investment and finance stems from my academic background in finance and investment and my professional experience as a financial analyst at one of the Qatari insurance companies. Moreover, I have a strong interest in understanding the rationale behind why investment managers choose to invest in one particular asset class over another. This curiosity drove me to explore how several investment assets impact profitability, specifically within the insurance sector. My research allows me to discover the real-world issues relevant to the financial performance of Qatari insurance companies.

The growing importance of the insurance sector in the country has fueled my passion to explore more about this area, and I am eager to be one of the first to study the impact of investment allocation on the financial performance of listed insurance companies in Qatar. Therefore, the research question focuses on examining the relationship between different asset classes such as equities, bonds, fixed deposits, managed funds, and real estate and the profitability of insurance companies, measured by ROA in the research. These asset classes were selected based on the investment framework provided by Qatar's central bank, which authorized the investments within these five asset types while avoiding the highly risk assets such as derivatives and cryptocurrency. Therefore, this

was the starting point of my research. In the initial stage, I considered including other sectors or expanding my study framework as recommended by my supervisor. However, the availability of the investment breakdown data was limited to the insurance sector, which became the main challenge for the research. Moreover, I realized that focusing on insurance companies would provide valuable insight based on solid and reliable secondary data sources.

Previous Empirical Review

The literature review chapter provided me with the opportunity to learn from other researchers. However, one of the main challenges in this area was the limited number of studies concentrating on the same variables I was analyzing in insurance companies. Additionally, there was a lack of studies focusing on the impact of investment allocation on the profitability of the insurance companies within the GSS region, making it difficult to conduct direct comparisons between studies. These challenges highlight the gap in the current literature and underscore the importance of my research. Accordingly, the focus on global research offered me a deeper understanding of my topic, particularly in relation to the theories and strategies adopted in similar research from different regions and sectors. Therefore, studies were selected and classified based on the availability of data similar to that used in my research. Reviewing and analyzing current studies strengthened my research and emphasized that my methodology was established in existing investment theories and empirical techniques.

Data Collection and Research Methodology

The data collection process was mainly focused on gathering secondary data from reliable and public sources, such as the Qatar Stock Exchange. This provides the study with historical data on investment in equities, bonds, fixed deposits, managed funds, and real estate alongside other control variables. The challenge in the data collection process was that the investment data was provided in the notes of the financial statements, which required me to manually search for and copy the information. This added time and effort, as I needed to double-check the data to ensure accuracy and capture the correct information for each company.

Once the data was collected and cleaned, I created the allocation model, which includes investments in fixed deposits, bonds, managed funds, and real estate with the ROA. In addition, I created five subgroup models containing related variables for each investment asset with the ROA, based on my supervisor's recommendation, to strengthen my research by conducting a comprehensive analysis of the investment allocation on profitability. Accordingly, I adopted Stata software as the primary statistical analysis tool, as my supervisor recommended. My familiarity with Stata was initially limited, as I was using it for the first time for my dissertation. However, I started by learning the most important functions for my research; gradually, I was able to conduct the required statistical techniques for my research, such as the fixed effect and random effect model regression, which applied to my panel data. I also employed a diagnostic test to choose the appropriate model and analyze the relationship between investment allocation and the ROA.

Result Analysis

Analyzing the results was a critical part of the research, requiring a deep understanding of how investment allocation impacts insurance companies' financial performance. During this process, I ensured the accuracy of the results, which were generally consistent with the market conditions in the insurance sector during this period. Accordingly, this part of the research reinforced my critical analysis skills by helping me understand the characteristics of insurance companies' investment strategies, the investment in assets within the Qatari market, and the relationship between investment allocation and profitability.

Challenges and Solutions

The availability of data was one of the main challenges I faced throughout the dissertation process. The investment breakdown data is limited, especially regarding the long-term availability. While I collected data from reliable sources, like the Qatar Stock Exchange, the available data only covered the previous five years, which prevented me from following my supervisor's recommendation to extend the dataset period. In addition, I tried to find similar data in other industries, but the insurance sector was the only one that

provided a breakdown of investment assets in their financial reports, a requirement mandated by the Qatar Central Bank through the implementation of IFRS 17. The new standards allowed insurance companies to present their financials using new reporting guidelines. To address this challenge, my supervisor and I decided to increase the number of variables from 5 to 12 in the research in order to create five subgroup models instead of one, which enhances the study's strength and comprehensiveness

This increase in variables and the creation of new subgroup models was requested during the last meeting after I had completed the five chapters, with a deadline of ten days from that date. The time constraint was a major challenge, which reshaped the study's methodology, data results, and analysis. Collecting data manually for the new variables from the financial statements and my unfamiliarity with Stata software took longer than expected. In addition, I work full-time in the morning and have family and other responsibilities. I created a new structured schedule to overcome these difficulties and am working diligently to follow it.

Skills Development

These challenges not only enhanced my time management and problem-solving skills but also contributed to the development of my critical thinking and quantitative analysis skills. Moreover, progressing through the research stages improved my critical evaluation skills by linking various theories to real-world data used in my research. These skills will be valuable for my academic growth, personal development, and professional career, as they will increase my ability and confidence to handle similar difficulties in the future.

Conclusion

The lessons gained through my dissertation journey are invaluable. I successfully met the learning outcomes and increased my experience, preparing me for future professional projects and research. These learned skills will absolutely contribute to advancing my career as a financial analyst and assist me in addressing future difficulties with efficiency and confidence.

The Newcastle Business School Masters Dissertation

LOGBOOK

Student Name	Buthaina Rashed Al Saidi
Student ID Number	23060357
Program	MSc Finance
Email address	Buthaina.saidi@northumbria.ac.uk

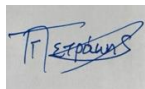
The logbook is to record your progress through the Masters Dissertation. It is evidence that you have met various criteria associated with the dissertation.

CONFIDENTIALITY

This is regarded as an exceptional procedure and must be agreed with the Dissertation Supervisor and declared on submission.

The Supervisor must confirm & agree that the dissertation contains commercially sensitive information. This is the only basis upon which a dissertation may be regarded as confidential.

AGREEMENT OF SUPERVISOR: _____



DATE: 13/09/224

MASTERS DISSERTATION SUPERVISION LOGBOOK – A BRIEF GUIDE

This Logbook is used to record your progress on the Dissertation and to provide a record of the discussions you have had with your Supervisor and the action points that have been agreed.

Contact and/or meetings with your Supervisor should be on a regular basis. Meetings are important for you to obtain advice and guidance from your Supervisor.

Prior to each meeting, you should complete the first two sections of the meeting record form, the other parts should be completed at the end of the meeting by the student and signed by both you and your Supervisor.

For students working on their dissertation remotely, there is an electronic version of the Logbook available on the e-Learning Portal site (UK Students – NX0422 / CV Students – NX0419), to be used when communicating with your supervisor.

The Logbook will NOT be assessed. It is designed solely as a mechanism to help you progress your Dissertation.

Please note – the effective and successful management of the Masters Dissertation is ultimately the student's own responsibility and the ability to do so is part of the learning requirement of the Newcastle Business School Masters Programmes.

Masters Dissertation Supervisor

For all matters in connection with the process and research issues of your dissertation

(eg subject related advice, methodologies, content and structure of dissertation) or remote supervision please contact your personal Masters Dissertation Supervisor.

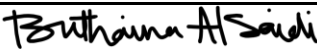
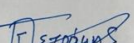
Postgraduate Academic Facilitators

For all matters regarding late submission of your dissertation and deferment or clarification of any aspect of the administrative arrangements you should see staff in the administrative office.

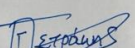
LOG OF FIRST MEETING

Date and time of meeting	26/06/2024 13.30UK	Duration	Individual Meeting 45 minutes
First meeting			
In the first meeting we discussed the following: - We started by introducing ourselves. - The topic of the study, the motivation, and the rationale behind choosing the insurance sector over another sector. - The type and availability of data to be used in the research. - The target population and sample size of the research. - The econometric methods for the data analysis. - The Ethical Approval form.			
Any issues, concerns, problems that have arisen of which you wish to discuss:			
Non			
Supervisor's comments:			
• <i>I suggested that it might be better to expand the research to include other sectors. However, the student insisted that she wishes her study to focus on investment in the insurance sector.</i> • <i>I acknowledged the research challenges due to the student's research focus (limited sampling, data availability).</i>			
Agreed tasks or action plan for next meeting:			
The supervisor recommended the following: - Start with the Literature Review, as it will help to understand how to develop the study. - Organize the selected Literature Review in excel sheet to make it easier to search through them. - <i>The supervisor suggested the student undergo literature review, so that she can understand further her topic. Furthermore, he provided the Academic Journal Guide, so that the student can assess the quality of publication and proposed academic journals/sources the student can employ her research.</i>			
Date & time of next meeting			
Student signature	Buthaina Al-Saudi		
Supervisor signature	T. Edwards		

LOG OF SECOND MEETING/SUPERVISION

Date and time of meeting	05/08/2024 15:00UK	Duration	Individual Meeting 50 minutes
Brief description of work done since last meeting:			
- The Ethical Approval has been sent to the supervisor, and he forwarded it to the concerned person. - Adopted the suggested organized structure for the literature review. - Complete chapter 1 (introduction), 2 (Literature Review), and 3 (Research methods and methodology). - Obtained and prepared the data for the study (five insurance companies, five years, five variables), for the next chapter (chapter 4) and send it for review. - <i>Supervisor encouraged the student to follow the University's Guidelines, and mentioned that an appropriate structure to a dissertation would be:</i> - <i>Abstract – Table of Contents – Table of Figures – Introduction – Literature review – Methodology & Empirical Strategy – Findings & Discussion – Conclusions – References - Appendix</i>			
Any issues, concerns, problems that have arisen of which you wish to discuss:			
Non			
Supervisor's comments:			
The overall comments for the three chapters were as the following: - <i>Identify your research hypotheses.</i> - <i>Follow University's guidelines.</i> - <i>Follow the structure mentioned in the guidelines & proposed.</i> - Recommended using Stata software for the data analysis (<i>following the student's acknowledgement & consent.</i>			
Agreed tasks or action plan for next meeting:			
- Focus more on adjusting the structure. - <i>Be sure you are satisfied with literature review and that all concerns are mitigated.</i> - Start with the data analysis part.			
Date & time of next meeting	-		
Student signature			
Supervisor signature			

LOG OF THIRD MEETING/SUPERVISION

Date and time of meeting	29/08/2024 14:00UK	Duration	Individual Meeting 2 hours and 30 minutes
Brief description of work done since last meeting:			
- Adjust the structure and methodology: I addressed the comments given on the structure in the second meeting. - Complete the five chapters of the research. - Adopt the robust Fixed Effects and Random Effects models.			
Any issues, concerns, problems that have arisen of which you wish to discuss:			
- Research structure and methodology: I would like to know if the revised structure and methodology are meet the requirements. - Data results and Analysis: I am seeking confirmation on the accuracy of the results.			
Supervisor's comments:			
- <i>Polish the presentation to meet the University's requirements.</i> - <i>Expressed my concerns regarding the limited data availability, and questioned the findings.</i> - <i>Proposed to the student to expand her data availability, as upon examining her data sources I identifying a rich variables list to be utilized.</i> - <i>I offered software-related (Stata) guidance so that the student expands her skills and not face difficulties in her analysis. I encouraged her, though, to study further her econometric modelling in proposed textbooks.</i>			
Agreed tasks or action plan for next meeting:			
- Adjust the structure. - Update the new dataset and send it by email for review. - Revise the research to reflect the inclusion of new variables.			
Date & time of next meeting			
Student signature			
Supervisor signature			

ETHICAL CLEARANCE - All relevant links are on the Blackboard site

It is ESSENTIAL that ALL STUDENTS complete this 15 point checklist in consultation with their supervisor. The completed checklist MUST BE SUBMITTED along with the dissertation.

All relevant links are on the Blackboard site

	ACTION	Date Completed
1	Consider ethical issues in the design of your research and discuss with your supervisor how you propose to deal with them. Record the outcome of this discussion in your logbook.	26/06/2024
2	Consider whether there is a need for formal Risk Assessment for your research.	26/06/2024
3	Submit the Faculty Student Ethical Issues Form (available from the eLP) to your supervisor for approval by an independent reviewer. Record the date that you receive approval.	28/06/2024
4	If necessary, obtain Organization Consent (using the Faculty Organisational Informed Consent Form) before beginning any primary research in an organizational setting.	N/A
5	Show your supervisor the signed Organisational Consent Form	N/A
6	If necessary, obtain Individual Consent (using the Faculty Individual Informed Consent Form) before beginning any qualitative primary research in an organizational setting.	N/A
7	Show your supervisor all signed Individual Informed Consent Forms.	N/A
8	If conducting primary qualitative research establish participant codes for your subjects and store these codes manually in a secure place.	N/A
9	If conducting primary qualitative research and you decide to transcribe the data then transcribe the data you have collected using participant codes for subjects.	N/A
10	Use encryption software to protect files in which you store your research data.	N/A
11	When writing up, ensure that anonymity and confidentiality are respected if requested by research subjects.	N/A
12	Include appropriate ethical declaration in Dissertation.	N/A
13	Discuss Ethical issues in your Methods chapter including measures taken to secure ethical approval, consent(s), data collection, storage and destruction and whether there was any need for formal risk assessment.	N/A
14	Include the signed Faculty Student Ethical Issues Form in an Appendix to your dissertation. Include unsigned ethics forms (Individual Informed Consent & Organisational Informed Consent) in an Appendix to your dissertation and state that your Supervisor has seen the original signed forms. Keep the original, signed forms with your Working Papers.	N/A
15	Confirm that all data collected for the purposes of the dissertation will be destroyed after the completion of assessment, unless otherwise agreed with your supervisor and research subjects (state reasons for this in your Methods chapter).	N/A

Appendix D: Ethical Approval

Student Project Approval Form

You should complete this document and then discuss the approval form with your supervisor before commencing any form of primary data collection. *Failure to complete this document and to have all aspects signed off and approved by your supervisor risks a notable deduction in your grade and may risk a case of Academic Misconduct. Please see the module Guidelines for detailed information on Ethical Approval.*

Tutor signs off	
Ethics form complete	(Yes)
Ethical concerns acknowledged	(Yes)
Research tool checked	(Yes)
Organization consent	(Yes)
Anonymize Organisational name?	(NA)
Is it high risk?	(No)
Tutor signature / date	 13/09/2024

Student name:	Buthaina Al Saidi	
Project title:	The Impacts of Investments Allocations on the Financial Performance of the Listed Insurance Companies in Qatar	
Supervisor name:	Dr. Ioannis Petrakis	
Project Aim or question:	To examine the relationship between investment allocations and financial performance in Qatari insurance companies	
Overview of your project		
What is your study and why is it important? (max 150 words)	This study examines the impact of investment allocations on the financial performance of listed insurance companies in Qatar. By analysing various investment types such as equities, bonds, fixed deposits, and derivatives, the research aims to understand how these allocations influence insurance companies' profitability. This is important as it provides insights for optimizing investment strategies, ensuring better financial health, and fulfilling policyholder obligations, ultimately contributing to the economic stability of the insurance sector in Qatar.	
Description of the research sample or population <i>We would like to know here from whom and how you intend to collect your data. Somebody should be able to read this and replicate the process you will follow. Please write this in the future tense.</i>		
Is your research being undertaken within an organization or you are using an organization's data? That is, do you need Organisational consent? [please tick as appropriate]	Yes	
	No	☒
If you are researching in an organization or using their data, who has provided the consent?	Not Applicable	
How specifically will you collect / generate data? What method/s are you intending to use?	The research will employ secondly data retrieved from the financial reports of the selected companies' websites and Qatar Stock Exchange. A quantitative analysis method will be adopted in the research.	

Describe the participants / sample that you will recruit.	The Research will concentrate on five insurance companies listed on Qatar Stock Exchange for the period of five years from 2019 to 2023, the sample includes data on investment in Equities, Bonds, Fixed Deposits, Managed Funds, and Real Estate.
What is your anticipated sample size?	The sample size gathered data of five insurance companies listed in Qatar stock exchange from 2019 till 2023, finalized in a total of 25 observation for each variable.
How will you recruit?	The research realises on secondary data which available on public reliable websites, such as the Qatar Stock Exchange and the selected insurance companies' websites.
Briefly, how will you analyze your data? (e.g. <i>quantitative t-tests, correlation etc.</i> ; <i>qualitative thematic analysis etc.</i>)	The data will be examined using quantitative methods, specifically multiple linear regression analysis, through the Ordinary Least Squares (OLS) method and SPSS software to examine the relationship between investment allocations and financial performance (measured by Return on Assets).

Part Two: Ethical risk

Areas of potential risk		
Please indicate how you will eliminate, or as a minimum ameliorate, the following areas of potential risks throughout the processes of research design, data generation, data analysis and dissemination.		
Area of risk	Questions relating to this risk	How will you mitigate against this risk?
Avoiding harm to all involved in or potentially affected by the research	How will you ensure that your participants/ respondents come to no harm (psychological; emotional; physical). e.g. not subjecting them to questioning about sensitive issues without advance agreement?	The research depends on secondary data, which is publicly available on reliable websites such as Qatar Stock Exchange and verified by Qatari regulatory authorities. Therefore, there are no ethical issues to be considered.
	How will you ensure your own safety (beyond just physical) in undertaking the Enquiry?	Following ethical guidelines and the country regulations for using public data.
Ensuring the anonymity of all participants/respondents	How will you ensure anonymity in collecting/ generating data?	Not Applicable
	How will you ensure anonymity in reporting the data?	Not Applicable
Gaining informed consent from all participants / respondents	How will you ensure respondent/participant consent in advance? You should provide a copy of the necessary consent form/s with this document.	Not Applicable
	(How) might participants/ respondents be able to withdraw their data?	Not Applicable
Avoiding deception	How will you promote accuracy in recording, analysis, reporting of the data/ findings?	By use reliable secondary data from official financial statements and the Qatar Exchange market website.
Data storage and destruction	How will you transport and store your data securely? (e.g. password protected; cloud storage)	Not Applicable
	How will you destroy the data and when?	Not Applicable
	<i>I confirm that I have read and understood the University's Health and Safety Policy. I confirm that I have read and understood the University's requirements for the mandatory completion of risk assessments in advance of any activity involving potential physical risk. I can confirm that there are no physical risks associated with this project and so no risk assessments are required. ✓</i>	