The Mutual Fund Performance, Before, During, and After the Financial Crisis: Evidence from GCC Region

تقييم أداء الصناديق الاستثمارية، قبل الأزمة المالية وأثناءها وبعدها: دليل من دول مجلس التعاون الخليجي

by

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Abstract

Mutual fund is a pool of the investors' money who share a common financial goal. Mutual fund offers an opportunity to invest in diversified, professionally managed basket of financial assets. Risk and performance assessment is a vital interest for investors as it offers optimal risk adjusted returns to investors, this is also an important area for mutual funds managers to use the information to make their investment decisions. This makes the risk and performance an attractive area for the researchers.

This study aims to analyze the performance of Saudi Arabia open-end fund. A sample of 12 equity mutual funds is used in this study during the period January 2000 to December 2018. The analysis over the 18 years included an important financial event which is the global financial crisis, therefore, the study investigates the impact of global financial crisis on the performance of the mutual funds. The study employs the most important and widely used risk adjusted performance measures including Sharpe ratio, Treynor ratio, Jensen Alpha, M2 and information ratio.

The result shows that few funds had outperformed the market, while the rest had underperformed during the study period. Some funds could not been able to beat the risk-free rate. On average the funds had returned lower than the expected return from CAMP. Some managers could manage the fund probably during the three period and led their funds to pass through the economic crisis with minimal losses.

Keywords: Mutual Fund, Global financial crisis, Risk-adjusted measures, Saudi Arabia, CAPM, OLS regression.

ملخص

الصناديق الاستثمارية هي مجموعة من أموال المستثمرين الذين يشتركون في هدف مالي مشترك، والتي توفر فرصة للاستثمار في سلة متنوعة من الأصول المالية المدارة بشكل احترافي. يعد تقييم المخاطر والأداء مهم جدا للمستثمرين حيث أنه يوفر لهم عوائد مثالية معدلة للمخاطر، وهذا أيضًا مجال مهم لمديري الصناديق الاستثمارية من خلال استخدام المعلومات لاتخاذ قراراتهم الاستثمارية. كل هذا يجعل من المخاطر والأداء مجال بحث جذاب للباحثين.

تهدف هذه الدراسة إلى تحليل أداء الصندوق السعودي المفتوح، وبالتالي تم استخدام عينة من 12 صندوق استثمار مشترك في هذه الدراسة خلال الفترة من يناير 2000 إلى ديسمبر 2018. تضمن التحليل على مدى 18 عامًا حدثًا ماليًا مهمًا وهو الأزمة المالية العالمية، حيث تقوم هذه الدراسة ببحث تأثير الأزمة المالية العالمية على أداء الصناديق المشتركة. تم استخدام أهم مقاييس الأداء المعدلة المخاطروالمستخدمة على نطاق واسع بما في ذلك نسبة شارب ونسبة ترينور وجنسن ألفا ونسبة M2 ونسبة المعلومات.

أظهرت نتائج الدراسة أن هناك القليل من الصناديق التي تفوقت على السوق، في حين كان الأداء المتبقي ضعيفًا خلال فترة الدراسة. لم تتمكن بعض الصناديق حتى من التغلب على المعدل الخالي من المخاطر. في المتوسط ، فإن عائد الأموال الفعلي كان أقل من العائد المتوقع. تمكن بعض مديري الصندوق من عبور الأزمة الاقتصادية بأقل الخسائر.

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First and Foremost, I thank God, the almighty, for his blessing throughout my research to complete this thesis successfully.

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I am extremely grateful to my husband Walid and my wonderful children for their understanding, support, prayer and patience on the sleepless nights during my master journey. The love and support I have got from my parents, brothers and sisters were very important.

I am very thankful to my colleague Mr. Ahmed for his support during collecting the data. His effort had a good effect on my data research. I thank all who in one way or another helped me in completing this thesis.

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Abbreviations

GCC: Gulf Cooperation Council

CAPM: Capital Asset Pricing Model

M2: Modigliani-Modigliani measure

S.A: Kingdom of Saudi Arabia

GDP: Gross domestic product

MITTX: Massachusetts Investors Trust

SEC: Securities and exchange commission

NAV: net asset of the fund

MF: mutual fund

β: Beta

U.A.E: United Arab Emirates

GRC: Gulf Research Center

SAMA: Saudi Arabian Monetary Authority

OLS: Ordinary least squared

SIBOR: Saudi Interbank Offered Rate

σ: Sigma

α: Alpha

IR: Information ratio

TASI: Tadawul All Share Index

Chapter 1: Introduction

1.1. Background:

As investment and financial market grow dramatically, the need of investment vehicles that suits everyone has been increased. One of these vehicles is mutual fund, where investors share the same investment objectives. Investors pool their money in a fund of stocks, bonds, or other securities. Individuals and institutions can invest their money in mutual fund for different reasons such as: the professional management who supervise and control the fund's assets effectively, the diversification occurs by investing in the fund, the affordability of fund to every single small investor, and the liquidity it offers through selling the shares of the fund.

Saudi Arabia is a regional leader in mutual fund activity, it is leading the Gulf Cooperation Council countries expansion of fund segment in terms of classes and volumes. Saudi Arabia became the first country in GCC countries to feature a mutual fund, this increase the need to measure the performance of the mutual fund in Saudi Arabia. One of the most popular and widely used investment instrument in Saudi Arabia is investing in Mutual funds. This appeared the need for examining the performance of these investments vehicle. This instrument is important as individual investors are seeking for risk diversification and for qualified managers to control it. Thus, mutual funds provide a great opportunity for individuals especially small investors to enjoy an investment in diversified funds of assets,

which they may not have access to them individually. It cannot be ignored that mutual funds also can be used by institutional investors.

Previous research and studies were conducted to test whether mutual funds can outperform the market. Sharpe (1966), Treynor and Mazuy (1966), Jensen (1967), and Skrinjaric (2013) concluded that there is no evidence that mutual funds can outperform the market. Tripathy (2017), and Boudreaux et al. (2007) found that mutual funds industry outperformed the market, they attributed the outperformance to the willingness of the fund managers to make decisions.

1.2. Research problem:

The demand for investment facilities has been grown over time, adding the depreciating value of some currencies, have forced investors to look for diversifying investments products. One of the convenient way to make this true is through mutual funds.

Mutual funds provide investors deferent benefits, making the investment its self easy to everyone, especially for who does not have experience in the investment field. However, investors - Individuals and institutions - should know how to supervise the performance of their investment, which can be occurred through measuring the performance of the mutual fund.

As Saudi Arabia total assets under management by fund managers are valued to more than US$23 Billion, which the majority of the funds have been invested in domestic asset of US$19 Billion. This make it important to analyze the performance of this investment instrument.

Thus, the problem statement of this thesis is:

Do Saudi Arabia actively managed local equity mutual fund, so they can outperform the market?

This thesis is conducted to test the performance of the Saudi mutual fund comparing to Saudi market, thus to see if investors earn a compensation for choosing an actively managed mutual fund instead of other type of investment.

1.3 Aim and objectives:

This thesis aimed to examine and analysis the performance of the Saudi Arabia Mutual Funds in comparison to the Saudi Arabia market, for the years from 2000 to 2018.

This study is conducted with the following objective:

- To look whether the Sadia funds are affected by the changes in the market or not.
- To test the performance persistence, where the past performance of a fund could possibly predict future return.
- To investigate whether the investor can earn from the diversification of the fund and the managers of the funds.
- To show small investors how to measure the performance of mutual fund, which may help them in taking their investment decisions.
- To put the entire fund under the same measures, and compare between them, which will show what the best fund to invest in is.

During an important global event which is the financial crisis of 2007-2008. The Saudi mutual funds industry is represented by daily price data on 12 mutual funds, while the benchmark is the Saudi market Tadawul index.

During the thesis different performance measures used in order to examine the effects of the market that may have on the Saudi funds. The study also examined the sensitivity of the Saudi mutual funds towards market risk, and estimate beta for the systematic risk. All results are separated to three periods: (a) before the crisis from January 2000 to November 2007. (b) During the crisis, which entails the period from December 2007 to May 2009, and (c) after the crisis, from June 2009 to December 2018.

1.4 Research Questions:

The primary question in this study is whether the Saudi market affect the net asset value of the mutual fund. The study answers different questions. Other questions can be answered as well such as, is the mutual funds industry outperformed the market. What is the magnitude of the effect of the financial crisis on the Saudi mutual fund industry relative to market does the gained excess returns due to the managements' skills?

By answering these questions – using the appropriate measures - this study constitutes a practical value to Saudi mutual fund literature.

1.5 Significance and contribution of study:

This study contributes to existence literature on mutual fund performance in one of the biggest emerging market especially Saudi Arabia as the amount of studies in this field is limited. This study add value as it examines the performance using different measurements, while most other studies might use only one model. This study used daily data instead of monthly data and it examine 18 years including the financial crisis. The study divided the examination period to three, before, during, and after the crisis. In addition, most studies on Saudi Arabia mutual funds focused on the Islamic Funds as S.A is an important country

in the Islamic world, thus no enough studies on the conventional funds in this Islamic world.

1.6 Thesis structure:

The study period contains a great important event for the world, the financial crisis of 2007-2008 which is the biggest crisis after the great depression, and the longest recession after World War II. Other authors went further and stated that the nature and the extent of the crisis is due to behavioral finance reactions from investors like Gärling et al. (2009).

Analysis shows that Saudi mutual fund outperforms the market during the crisis, and after the crisis, as the market was in an advance position for the MF. The market returns dropped during the global financial crisis sharply, where the funds became in better positions during the crisis. Market and S.A mutual funds walked in the same pattern in the study period. Using Capital Asset Pricing Model (CAPM), the study concluded that the mutual funds – on average – could not achieve the expected return from CAPM. Sharpe ratio showed that most funds earned excess return more than the risk free rate per unit of total risk before and after crisis. During the crisis moat funds could not even reach the risk-free rate. Modigliani-Modigliani measure (M2) is consistent with Sharpe ratio and Treynor ratio with respect to the risk applied in each ratio. Looking to the funds management's skills and their ability to make decisions in the investors favor, the IR in the three periods were positive, means on average the funds' manager took decisions to generate excess returns relative to the benchmark. However, the p-values of the regression between each fund and the market are not statistically significant, which means that other factors – than the market – plays role in the funds' return changes.

The remaining of the thesis is organized as follows: Chapter 2 describes the mutual funds development, types and categories, and mutual fund benefits. Further, it describes the performance of the mutual fund, and its development around the world, GCC countries, and Saudi Arabia. Chapter 3 presents the theoretical framework of the thesis, describing studies related to measuring the performance of mutual funds. This includes the development of the measurements which described in detail. The measures used in the study, and studies related to the examination of whether mutual fund can outperform the market are mentioned. finally, an over view of the global financial crisis and its effect on mutual funds in the world, GCC countries, and Saudi Arabia. Chapter 4 describes the methodology, data collection and description, as well as the empirical study. Chapter 5 shown the result of the thesis, conclusion, remarks, the limitations of the thesis, and provide suggestions for future studies. And finally a summary and conclusion of the work in the theses is presented in Chapter 6.

Chapter 2: Mutual Fund Industry: An Overview

2.1 Introduction

In this chapter of the thesis a description of mutual funds will be started which include mutual funds definition. Types and categories are followed. After that some benefits of mutual funds are mentioned and some features of the mutual funds are going to be described in brief. A summarize of how to measure mutual fund performance will be mentioned. Lastly, developments of the mutual funds industry are provided around the world, the GCC countries and a description of the developments in the Kingdom of Saudi Arabia (S.A) mutual fund in specific.

2.2 Mutual Funds Definition

Cuthbertson, k., Nitzsche, D. and O'Sullivan, N. (2006) gave a definition of mutual funds as a pool of investments that allow investors to gain the economies benefits by accessing to well diversified fund, these funds are consist of securities or assets which are allocated to different categories such as aggressive growth, growth and income, growth, equity-income and small companies. Wankhade (2016) explained the concept of mutual funds as a large number of investors sharing the same goal of having a safe investment with acceptable return. These investors choose a proper person -who is later known as the fund manager- with enough knowledge of market and this person start to invest the investors' money on their behalf against paying some fees. With the development of funds and investments companies, funds started to have a board of directors to work for shareholders'

interest. Funds manager should maintain the purpose of the fund by taking the decisions of the selecting securities in the fund.

The pooling of different assets of resources is the biggest strength for mutual fund. People aim investing in funds for different reasons, some because they do not have the skills and time to examine thousands of individual securities, others because they don't have enough data or cannot have access to every information in the market, yet they all select to join a mutual fund with a qualified manager to manage their investment.

Mutual funds are widely used in the countries with developed financial infrastructure and financial system. Mutual funds are like an innovative investment for everyone, that is why their popularity is huge and widespread around the world. Fund industry is larger in countries with strong rules and regulations, and countries with wealthier and educated populations. The fund industry is also larger in countries where the industry is older and trading costs are lower. As Khorana, Servaes and Tufano (2005) concluded in the findings that regulation and countries rules affect financial development of that country, factors such as strong regulations, investors protection rules, HighGross domestic product(GDP) per capital, investors wealth, and easy procedure to enter an industry all lead to a large fund industry and have positive impact on the size of mutual fund industry.

The opportunity of well diversification and professional management that funds managers offer to investors, is the reason that mutual funds industry grown over the last years. This result consists with the study of Ferreira et al. (2012), which concluded that funds in the developed countries perform better, especially if the country has strong liquid stock market and strong legal institutions.

For better understanding, brief about mutual funds history is followed. According to Berghuis (cited by: Rouwenhorst,2004) in 1774 Abraham van Ketwich, who is a broker, created a Dutch trust called Eendracht Maakt Magt. The purpose was to make a diversified pool available to everyone. During the 1890s the united states caught up the procession of establishing funds.

At 1924 the first official open-ended mutual fund was created – in U.S - with a condition that the fund must buy back the shares from the investors at the end of every business day. The birth of mutual fund industry by creating this fund which was called Massachusetts Investors Trust (MITTX). After that the wheel accelerated and the number of open-ended mutual funds reached 19 by the end of 1929, and there was about 700 closed-end funds in the same year. The 1929 Great Depression was the gin reason of writing rules and regulations to control the work of mutual fund industry, as well as creating of the securities and exchange commission (SEC).(www.mutualfunds.com). The investment company act of 1940 also put more regulation on the structure of the funds.

According to Fernando et al. (2003) the 1990s had fast growth in the mutual fund industry. In that period the growth of mutual funds was fueled by the strong performance of mutual funds, the growth of financial globalization and expanding large financial groups in different countries. The search of safe financial instruments that can be liquid when needed and generate return, was strong motivate in mutual fund innovation.

In 2003, mutual fund faced a scandal after discovery of unequal treatment of investors, and illegal trading and market timing practices. This behavior led to more rules to regulate mutual fund industry.

The global financial crisis in 2007-2008 was a big important landmark in mutual fund industry. This crisis put and strong impact on the financial markets and financial instruments and tools, and as a result the mutual funds industry. This is field of this thesis and will be described throughout the thesis.

What constitutes mutual fund, the types of mutual funds, the classification, and the reasons stand behind receiving returns by just investing in funds, are all describe in following paragraphs.

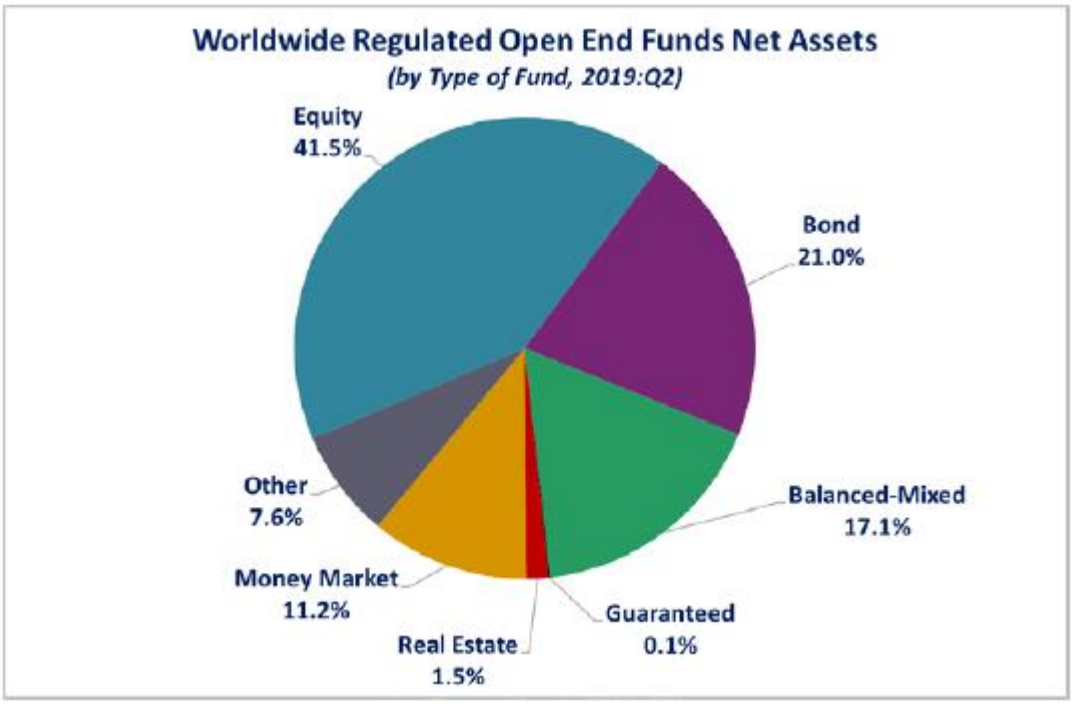
2.3 Classification of Mutual Fund

There are two types of mutual funds, open-end funds and there are also closed-end funds. The open-end funds known also as Mutual funds (which is the subject of this thesis), while the closed-end funds known as trusts. Open-end funds differ from closed-end funds in that the first one allows investors to buy shares at any amount, there is no pre-determined amount of stocks outstanding and these shares can be sold back to the fund. At the opposite, the closed-end funds had a fixed amount of shares and does not buy back the shares. The Open-end funds are priced by an estimate of current market value of the per share net asset of the fund (NAV), while closed –end funds are totally different.

With thousands of mutual funds available today, it is easier when looking to mutual funds in its categories. Five main types of mutual funds determined by Fernando et al. (2003). Funds mainly classified according to type of assets such as in stock market, bond market, balanced market, money market, fund of funds, and hybrid funds. As investors look for variability for their investment and this led to large number of sub-categories in each category. These classifications are also consistent with Wankhade (2016)

The European Fund and Asset Management Association (2019) published in its 2nd quarter report for the year 2019 that 41.5% of global mutual fund net asset are held in equity fund (which is the field of this thesis), followed by bond fund as shown in the pie graph in fig.1.

Figure 1: Worldwide Regulated Open-end funds net assets by type



Source European Fund and Asset Management Association

Fernando et al. (2003) saw that equity funds can be classified by sectoral or geographic specialization, investment objective, management – wither the management is active or passive- and by class of investors. But Wankhade (2016) listed down the equity mutual funds to seven major sub-categories as follows: Large Cap, Mid Cap, Multi Cap, Small Cap, Sectoral fund, ELSS fund, and Arbitrage fund.

Wankhade (2016) explained the money market as a way to using surplus funds in short term instruments while wait for better options. The balanced fund allowed investors to gain income from equities and bonds, and this is ideal for the cautiously aggressive investors. Bond fund consist of government securities or debt instruments as a major part of the fund.

Wankhade (2016) also defined hybrid fund as a pool of stocks and bonds with different proportion over time – it also can remain fixed -. Fernando et al. (2003) went further and put a category called fund of fund, which is a fund that invest mainly in other mutual funds.

2.4 Advantages of Mutual Fund

Fear of taking investment decisions is the most major reason stood behind why people invest in mutual funds. Others reasons also played rule such as lake of investor's time to study every pros and cons of the investment opportunities, lake of financial information, some financial markets have inside barriers, which prevents small investors to get the important information in time. Different needs and objectives of investors, some investors may settle for safety of capital, other may run after returns, some investors may aim for capital grow steadily, other may want to save for retirement, so investing in one or two financial product can't satisfy all parties. The need for mutual fund grew in the past decade due to the previous needs.

According to Birdthistle (2016) summarized the benefits of mutual funds that investors will gain to three major points which are: diversification and reduce risk, specialized management, and liquidity and easy withdrawal.

2.4.1 Specialized management

Increasing assets in the fund or sell some securities, may not be a simple and easy decision. Funds provide the benefit of professional management for investors. People's money is managed by experienced manager, how has all the time and experience to study market

and take decisions on behalf of investors. Investors have to pay fees for the manager in order to run their investments and money in the fund. (Birdthistle, 2016)

2.4.2 Diversification and reduce risk

Successful investing in broad range of securities that are good diversified, reduce the investment risk and limited it to the minimum. Mutual funds allow investors to spread their money across different instruments, industries, companies, and even countries without expensing effort, instead small investors gain diversification through different assets and countries and make meaningful investment in spite of the don't have enough money to do the same investments individually outside the fund (Birdthistle, 2016)

Investing in good diversified fund is much cheaper compared to investing directly in all the capital markets to invest in the same number of fund's assets.

2.4.4 Liquidity and easy withdrawal.

An easy liquidity is provided when investing in open ended mutual fund, also investors can buy and sell units anytime at the NAV price. Investors in close ended fund can redeem their units at market price. The interval fund which is cross between the above two types of fund also provide periodic liquidity option.

2.5 Mutual Fund performance

The market value per fund's share is called Net Asset Value, or NAV, which is "the sum total of the market value of all the shares held in the portfolio including cash, less the

liabilities, divided by the total number of units outstanding" Wankhade (2016). All buy and sell orders and trading are processed at the NAV.

The National Association of Investors Corporation (2007) declared that as the stocks are traded throughout the day, the NAV is calculated at the end of each business day using the following formula:

NAV = (Market Value of fund – Liabilities) / total number of outstanding shares (2.1)

NAV is the price the investors can buy fund units or sell it back to the fund manager/company. In other terms it is the fund's per unit market value or the evaluation of the performance of the mutual fund.

In detail, NAV consist of the market value of all fund securities – of assets -, adding to that any fund's receivable dues and any cash, then fund commitments and liabilities should be deducted. To have the unit price, it should divide the NAV on the number of units in the fund.

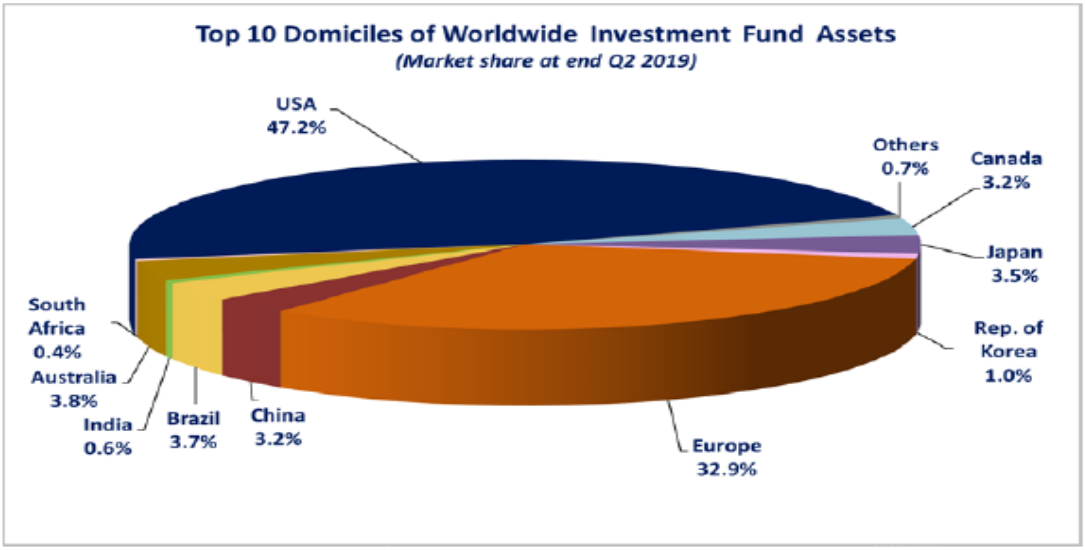
2.6 Mutual fund industry developments

This section of the thesis shows the developments in the mutual funds industry in Saudi Arabia. Following paragraphs explain the spread of the industry worldwide, especially in Saudi Arabia.

2.6.1Mutual fund industry developments around the world

United states and Europe currently held the largest shares in the world market, with 47.2% and 32.9% respectively. World wide open-funds assets by country are shown in fig2

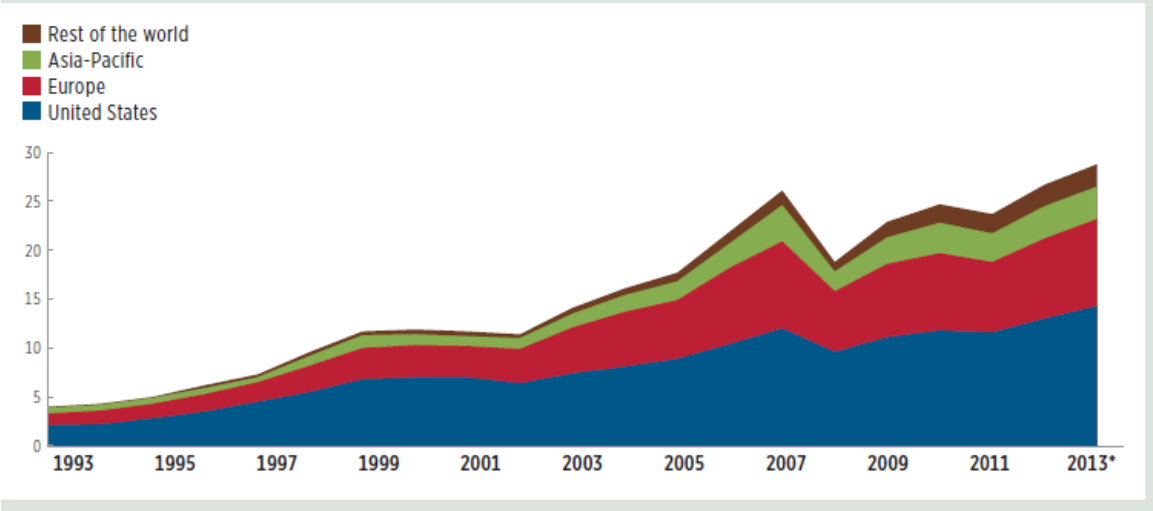
Figure 2: Worldwide Regulated Open-end funds assets by country



Source European Fund and Asset Management Association

According to 2014 report of ICI Global Research Perspective (2014) the total net assets of the mutual fund industry have grown rapidly as shown in fig.3. The assets in mutual funds have increased from $4 trillion in 1993to $28.9 trillion in 2013:Q3.

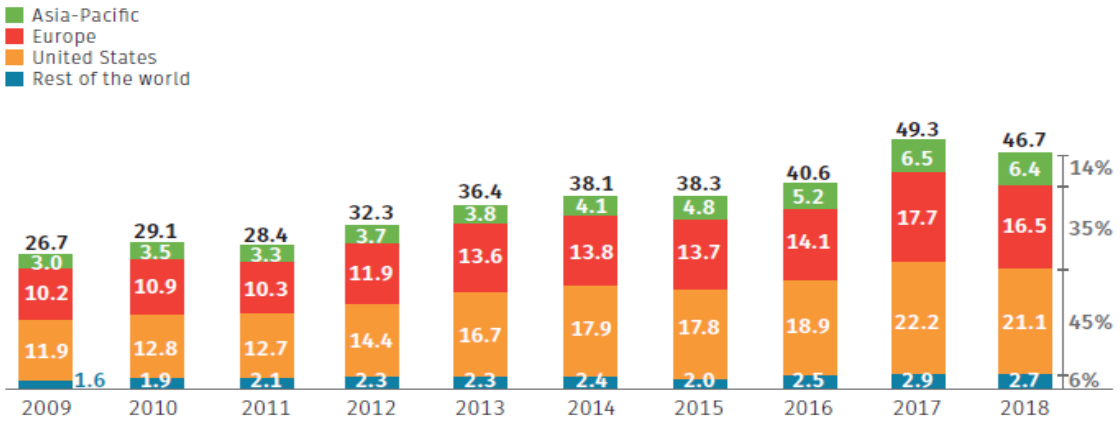
Figure 3: Worldwide Total Net Asset of mutual funds for the years 1993-to-2013



***Data are as of September 2013**
Source: ICI Global Research Perspective.

With the rules and regulations stated to regulate the industry. Reports also had modified in these years to show more detailed information. The investment company fact book (2019) in its 59th edition shows that mutual fund net assets by region and year as illustrated in Fig. 4 which shows that U.S kept it position as the world's largest fund market with 21.1 trillion of the world's fund total net assets with a percent of 45%.

Figure 4: Worldwide Total Net Asset of mutual funds for the years 2009-to-2018 (by region, year-end)



Source: ICI Global Research Perspective.

Figure 5: Worldwide Net sales of equity funds and equity market returns for the years from 2002 – to 2013

Source: ICI Global Research Perspective.

The Arab countries followed the trace with the development of this industry. Starting with Saudi Arabia as the largest mutual funds industry in the middle east and Islamic world by starting the first fund in 1979. Kuwait placed the second of issuing mutual fund in 1985, followed by Egypt, Bahrain and Oman in 1994, Morocco in 1995, Lebanon on 1996 and finally Jordan in 1997. Saudi Capital Market Authority website (www.cma.org.sa)

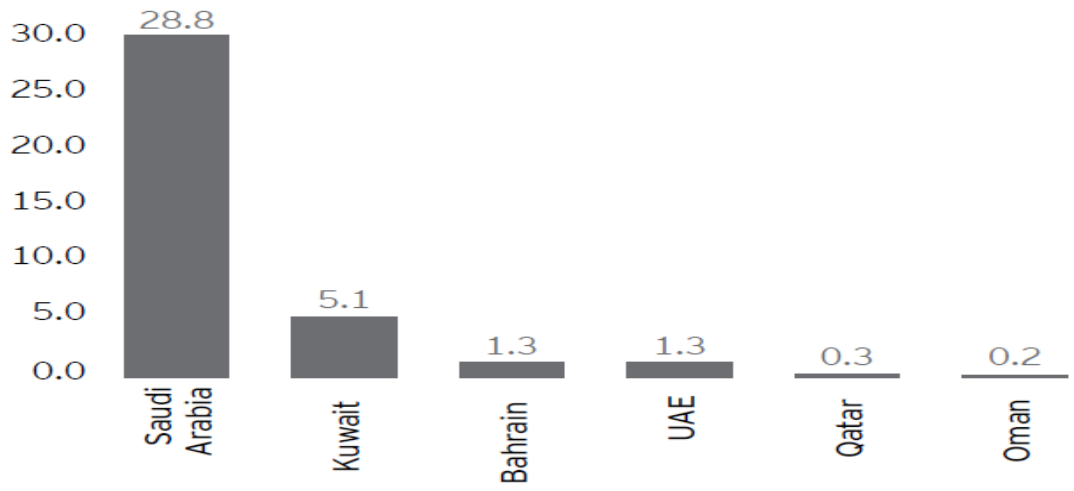
Due to the distinctive characteristic of Islamic countries, including the gulf countries. The financial markets have evolved to reflect the Islamic laws and regulations. Mutual fund

industry has developed as well and created a Islamic mutual funds which specialized in variety of Islamic securities (e.g. equities, Islamic bonds, real estate, and commodities). Islamic market indexes are created as well.

The EY GCC wealth and asset management report (2015) reported that mutual funds in GCC countries are small and serve as a marketing tool for asset managers, but still represent the largest share of assets under management. The reason for the small size of domestic mutual funds in GCC countries is the lake of awareness of the benefits of mutual fund investment, and the limited knowledge of the advantages of investing through professionally managed fund. Investors in GCC countries still preferring to invest directly in equities and real estate. In spite of these reasons, mutual funds are set to grow fast, as GCC countries regulated the foreign funds and developed system to regulate investment plans in the region to make opportunities for local asset managers to participate.

The EY GCC wealth and asset management report (2015) accounted 375 funds with US$36 billion in assets, with one-third of the market focused on equity fund. It also reported that in Kuwait, the bulk of the funds are equity focused. In Bahrain, almost half of the assets are in fixed income funds. Figure 6 illustrated the mutual fund assets in GCC countries.

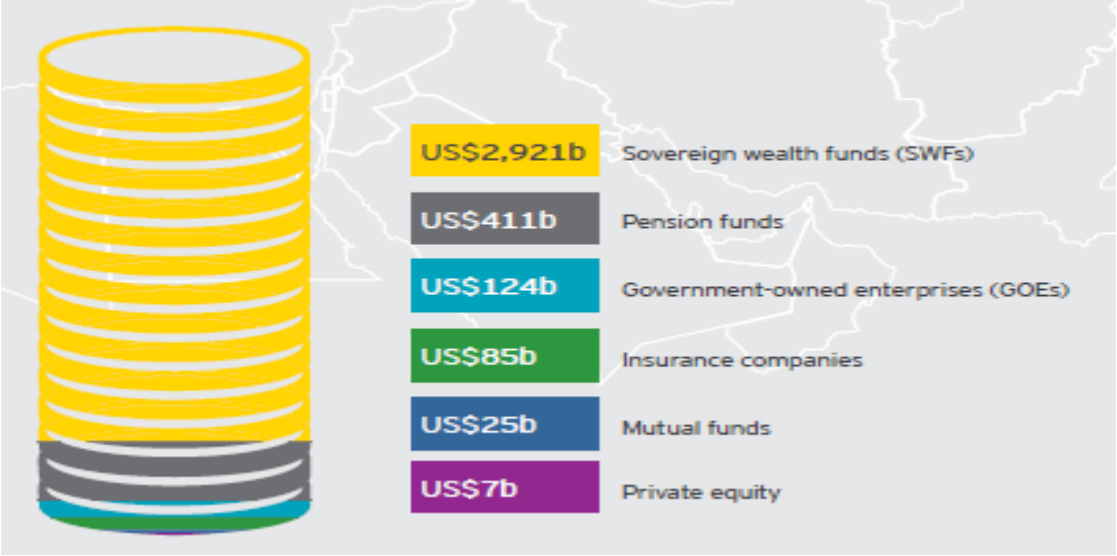
Figure 6: Mutual fund assets in the GCC countries (US$b)



Source: EY GCC wealth and asset management report (2015)

The EY GCC wealth and asset management report (2017) reported a US$3,500b as assets under management in GCC countries. Mutual funds represented US$25b of that as shown in fig.7.

Figure 7:Combination of assets under assets in the GCC countries (US$b)



Source: EY GCC wealth and asset management report (2017)

The effect of 2008 financial crisis on mutual funds industry contained worldwide. The financial markets are linked directly to the funds returns. As illustrated in figure 5, the ICI report (2014) shows the strong correlation between net sales and return after 2007. At 2008

global net sales of equity funds sharply declined to negative values with the return on equities. As this return went deeply down, the demand for mutual fund share did so.

2.6.2 Mutual fund industry developments in Saudi Arabia

According to Saudi Capital Market Authority website, the kingdom of Saudi Arabia was the first Arabian country to enter the mutual fund industry in 1979 through creating open-ended fund called "AlAhli Short Term Dollar Fund". mutual funds continued to be issued in following years. Saudi Arabia's banks and financial institutions continued to issue different types of funds. As this industry began to grow, Saudi Arabia put rules to regulate this field at 1993. Al Rajhi (2004) explained the purpose of this open-ended fund as to invest in time deposits U.S banks, Dollar-Denominated commercial paper and certificated of deposit. At 2000 funds invested outside S.A was mainly in equities in U.S. although local equity funds still favorable.

The EY GCC wealth and asset management report (2015) reported that Saudi Arabia had 80% of the total assets. And listed the significant of Saudi Arabia which is more than half the assets are in money market or trading financing funds. 70% of funds are Sharia-compliant, compared with just 21% in the rest of the region. Although the report mentioned that the bulk of the region's domestically focused equity funds based in Saudi Arabia, over the last three years the average total return estimated to be about 18% and significantly outperforming Tadawul (the share index) which returned was 13%. This outperformance of the funds and the active managers was due to the small size of the mutual fund, and the inefficiencies in the market.

The 55th annual report of Saudi Arabian Monetary Authority (2019) announced that the number of funds and investments in domestic assets increased in 2015 and 2016 and then declined in the following two years 2017 and 2018, although domestic assets of fund rose up. The summary of the indicators of the investment funds managed by domestic investment is shown in table 1.

Table 1:Key indicators of investment funds managed by domestic investment companies

Year	N0. Of funds	Change (%)	Investments in domestic assets (Billion SAR)	Change (%)	Investments in Foreign assets (Billion SAR)	Change (%)	Funds' total assets (Billion SAR)	Change (%)	No. of subscribers (Thousand)	Change (%)
2014	252	6.8	81.9	0.0	28.8	35.3	110.7	7.3	246	-4.7
2015	270	7.1	75.9	-7.27	27.0	-6.4	102.9	-7.1	237	-3.7
2016	275	1.9	70.7	-6.9	17.2	-36.3	87.8	-14.6	224	-5.3
2017	273	-0.7	91.1	29.0	19.1	11.1	110.2	25.5	238	6.3
2018	249	-8.8	93.6	2.7	18.2	-4.6	111.9	1.5	333	39.5

Source: The 55th annual report of Saudi Arabian Monetary Authority (2019)

Another statistical bulletin issued in 2019 from the Saudi Arabian Monetary Authority shows the number of active funds, subscribers, and the total assets of fund. Table 2, shows a decline in the number of funds in 2018 compared to 2014 but at the same time an increase in the number of subscribers and total assets.

Table 2:Number of funds, subscribers, and total assets for the period from 2014 to 2018

Period	No. of funds	No. of subscribers	Total assets of funds (million riyals)
2014	252	246,031	110,711
2015	270	236,977	102,898
2016	275	224,411	87,836
2017	273	238,445	110,233
2018	249	332,567	111,862

Source: the monthly statistical bulletin (September 2019)

2.7 Summary

As a summary, mutual fund is a financial vehicle that operated by managers who collect investors' money and allocate them to the fund's assets, which could be stocks, bonds on other securities. Mutual fund can be open-end – which priced by the NAV-, and closed-end. 41.5% of the global mutual fund net asset are held in equity fund as European Fund and Asset Management Association published in 2019. Investing in mutual fund(MF) comes with many benefits such as having specialized management to the investment, diversification and reduce risk and this is the main purpose of innovating fund, and liquidity and easy to withdraw money. MF has developed all over the world. In the middle east for example, the first and largest MF was in Saudi Arabia, which started this type of investment in 1979, when creating open-ended fund called "AlAhli Short Term Dollar Fund".

Chapter 3: Literature Review

3.1 Introduction

With the rise of mutual fund industry, different related studies also developed. Academic studies regarding mutual funds have evolved, as mutual funds have. These studies had developed models to evaluate the performance of mutual funds. Other studies have examined the abilities of fund managers to add value for fund's investors. It should be said that literatures on mutual funds grew positively as they gained their popularity and importance in economy.

Most of the valuable studies have focused on the developed markets such as U.S and only a few examine whether the findings can be applied in the emerging markets as well. This study investigates the performance of mutual funds in one of the emerging markets, Saudi Arabia.

At the beginning of mutual fund appearance, studies focused on defining, explaining and improving the measures used to examine the performance of mutual funds. Later on studies moved to focus on the persistence of the mutual funds' performance.

3.2 Performance evaluation measurements

Although many factors affect investors' decisions, performance stills seem to be the determining one.

Many researches on mutual funds addressed issues related to performance, and here this thesis describes the measures used to evaluate the performance of equity mutual funds located in Saudi Arabia.

When the mutual fund industry founded and started to develop, the evaluation measures did so to check whether the fund performed in the interest of its investors, performing better/worse than before, or competing its peers.

3.2.1 The development of measurements

Comparing the past returns of the mutual funds was the simplest way to evaluate the funds. After that, investors started to look for the best risk/return trade-off fund available. The credit for this goes back to Markowitz who in his work in 1952 "Portfolio Selection", when he changed the way of evaluating the funds and created a new path by introducing risk and its relationship to fund's return, later his work became known as Modern Portfolio Theory. Markowitz in his study advised investors to choose the fund that lies on the efficient frontier, which is the set of all optimal fund – optimal fund is the fund that offer the highest return for a fix level of risk, or the lowest risk for a given level of expected return – . Markowitz demonstrated that diversified fund has less risk than the sum of its individual parts.

Markowitz (1952) commended in his work that a good fund is the one that gives both minimum variance and maximum expected return. Therefore, investors should look for the fund that has an overall risk-reward characteristic, and not the one with the large number of securities. Markowitz introduced the efficient frontier, where the optimal funds with the highest return for a given level of risk are portray or the lowest risk possible for a given level of return.

Tobin (1958) started from Markowitz point and expended the work by adding the risk free rate. By this, he made it possible for investors to leverage or deleverage portfolios on the efficient frontier. Riskless asset is necessary to gain the profit mentioned in Tobin study.

In 1965 Treynor created a new notion by putting a benchmark. Treynor measured the return in light of the systematic risk. Treynor assumed in his study that investors diversified their investment, and the fund was well-diversified. In other words, he focused to show the relationship between return and systematic risk – above the risk free rate (Sourd, 2007). Because of the assumption and considering the systematic risk of the fund, the ratio is the most appropriate measure to evaluate a fund.

Sharpe (1966) did a study extending Treynor work in 1965, the difference in this ratio from Treynor measures was that Sharpe incorporated the volatility of a fund's return. Sharpe represented the amount of return that an investor receives per unit of increase in risk. He studied the performance of 34 open-end funds for the period of 1954-1963. His paper concluded that fund's performance could be evaluated with measure that considers return and risk. By using Sharpe ratio, the performance of not very diversified fund, can be evaluated.

Jensen (1967) focused on evaluating the ability of fund's manager to predict future security prices, and the ability of the fund's manager to minimize (by efficient diversification) the risk of the fund. Jensen study of 115 fund returns for the period from 1955 to 1964, and concluded by showing that mutual funds were not able to predict prices well enough to outperform a buy-the-market-and-hold policy on average. In addition, there were little evidence that individual fund was able to do better than that.

After that, Fanco Modigliani and his granddaughter developed a new measure called Modigliani risk-adjusted performance measure, also known as M2 and as RAP. This ratio is closely related to Sharpe ratio from which it is derived. Moreover, in case of negative returns, M2 continues to hold. M2 measure used the market risk to scale the funds to the level of risk found in the market. In other words it compared the fund's return to market portfolio's total risk.

Modigliani and Modigliani (1997) developed this measure as an alternative to Sharpe ratio and easier to investors to be understood. As it is expressed in units of percentage return, it becomes more easier to compare between funds.

3.2.2 Performance measures.

The measures used in the methodology part are described in detail below. After describing the foundation of these measures, this part will provide a clear specification of how this study will benefit from applying these measures.

Regression analysis:

Running a regression analysis of the mutual fund returns and market's returns, the study gets the beta (β). This is the slop of the relationship, which describe the risk of each unit of money invested in the fund to market portfolio as stated by (Fama and French, 2004). This shows the systematic risk of the mutual fund. Using regression, the impact of the financial crisis on the mutual funds returns can be tracked.

Capital Asset Pricing Model (CAPM)

It is a one-factor model used by many researchers. It is a widely used measure to evaluate the performance of portfolios and mutual funds. Fama and French (2004) argued that investors are risk averse whose care about variance and mean of investment return when choosing a portfolio. This means investors seek the funds with minimize risk for a given expected return, and funds with maximize expected return for a given risk. This behavior called "mean-variance-efficient" (Fama and French, 2004).

CAPM explains returns as a function of market return. The popular model (CAPM) based on one risk factor relative to market. In other words, CAPM explain the fund's performance through the performance of the market.

Jensen's Alpha

It is a measure of performance that represents return on fund, above or below that predicted by CAPM. It is used to evaluate the performance of the fund manager. It can be said that it is a measure to determine if the fund earn is proper enough for its level of risk it takes. In other words, Jensen's measure measures the fund manager's performance - after considering market risk – in comparison to market. Moreover, weather managers can outperform the market or at least able to consistently maintain their performance. It is the difference between actual returns of a fund and the expected earning of market – or benchmark- portfolio for the same level of symmetric risk (Beta). The excess return - over the return calculated using CAPM - is what's called Alpha. This model presented by Jensen (1967) included that a positive Alpha indicates better performance compared to the expectations while the negative alpha means the fund performed poorly than expected. In

short Jensen Alpha measures risk adjusted performance of a fund by comparing the return with the expected return on the basis of Capital Asset Pricing Model (CAPM).

Modigliani and Modigliani measure

In 1997 Modigliani and Modigliani proposed to leveraged or deleveraged the fund using risk free asset so that the fund and the benchmark have the same risk, which will make the comparison easier in terms of basis points of risk-adjusted performance. This measure – according to Modigliani and Modigliani- is easier to understand by the average investor than the Sharpe ratio. This measure is equivalent to the return a fund would have achieved if the fund had the same risk as the benchmark. The higher the measure, the better the return of the fund. Modigliani and Modigliani measure allows the investor to evaluate the performance of funds in relation to the benchmark, which is also helpful in comparing between funds to choose the best investment. It can be expressed as Sharpe ratio times the standard deviation of the benchmark and then adding the risk free rate.

Treynor ratio

Treynor (1965) developed a measure of funds' performance including risk. It does not consider the total risk; instead, it looks only to the systematic risk. It considers the beta of the fund as its risk, because beta of a fund represents the systematic risk of the fund relevant to its benchmark. This ratio consists of (1) return of the fund (2) risk free rate (3) beta of fund. The larger the ratio, the better the fund.

Sharpe ratio

It is a popular ratio and widely used because of its simplicity. William Sharpe (1966) derived it by using three components: (1) return of a fund (2) risk free rate of return (3) standard deviation of a fund. It measures the risk-adjusted return of the fund. In other words, it measures the excess return over the risk-free in relative to the fund standard deviation. By this ratio, analyst can test whether the excess return is due to manager's decisions or to risk taken.

Treynor and Sharpe ratios are similar measures with little differences. Sharpe ratio is applicable to all funds, while Treynor is to the well-diversified funds. In addition, Sharpe ratio used to measure historical performance, while Treynor is forward-looking performance measure.

As the past performance (measured by Sharpe ratio) is not the best forecast of future performance, Sharpe ratio alone is not enough, and Treynor ratio is used in conjunction.

Different studies have been done on mutual fund performance. Comparing the performance of mutual fund returns against a benchmark - usually the relevant market – is usually a controversial issue.

Information Ratio

Information ratio is a fund return's measurement that evaluate the fund manager's level of skill and ability to take decisions that generate return relative to the benchmark. Information ratio composed of 2 elements the residual return and the tracking error. The residual return compared to its residual risk. This residual return is corresponding to the

return that is not explained by the benchmark. This occurs from the decisions made by the fund's manager, when manager overweight stocks which he hopes that these stocks will generate return greater than the benchmark. Another important term here which is the tracking error, which is the standard deviation of the difference between the fund's return and the benchmark's return. The lower the value, the closer the fund's risk to the benchmark's risk. Information ratio is simply dividing the residual return by the tracking error. Managers seek to maximize the information ratio, which means high residual return and low tracking error. This ratio allows checking the evaluation of the manager's level of information compared to the public information available. As well as it evaluates the manager's skill in achieving a better performance than other managers. (Sourd, 2007)

3.3 Mutual Fund Performance

Studies started since the beginning of the fund establishment. It began by measuring the performance of funds, and then with the development of funds, studies have developed as well to examine the persistence of fund's performance.

The most related issues to evaluation of the performance of mutual funds are (1) the performance compering to a benchmark, and (2) the persistence of this performance over time.

Some studies showed that mutual funds yield better return than comparison benchmark, whereas in other studies, mutual funds are shown to perform significantly worse returns. For example, Redman, Gullett and Manakyan (2000) used the risk-adjusted returns ratios to examine international data and showed that mutual funds' returns outperformed the

market, which they benchmarked during most of the study period. Investors in these funds gained the diversification benefits.

A study done by Vidal-Garcia (2013) on European mutual funds, found a persistence in benchmark-adjusted returns. Moreover, past performance of European mutual funds can be used for future performance. Using a large data of European equity mutual funds, the study documented strong evidence of persistence of the funds' performance for 36 months.

3.3.1 Mutual funds and outperforming the market

The industry of mutual funds has been under attention of the researchers to investigate its performance against the market or benchmark. In this part, I will point out several of the studies that handled the performance of mutual funds; their conclusions will be mentioned as well.

Starting with Sharpe (1966) and his attempt to predict the performance of mutual fund, the sample consisted of 34 mutual fund, although he applied the reward-variability ratio, he however concluded that some funds outperform the Dow Jones index and some did worse and underperform the benchmark.

Seeing whether mutual fund's managers successfully outguess the market, and anticipated market stock future movements was the main aim to Treynor and Mazuy (1966). To judge these managers and their claims of owning the skills of taking the correct and necessary decisions, Treynor and Mazuy studied the performance of 57 open-end mutual funds to answer a question of "Is there evidence that the volatility of the fund was higher in years when the market did well than in year when the market did badly?". At the end of the study,

Treynor and Mazuy did not found evidence to support managers believes of their abilities to outguess the market.

The work of other researchers like Jensen (1967), reached the same results. The 115 mutual funds Jensen worked on have proved that mutual funds are not able to outperform the market on average.

In Bangladesh market, mutual funds could not outguess the market in the period from May 2010 to April 2016 as Hasan and Ahsan (2016) concluded in their study. After using six measures; average return, Sharpe ratio, Treynor ratio, information ratio, Jensen's alpha and M square; they found no selection skill persistent to most fund managers.

Skrinjaric (2013) attempted to look for trace to evaluate Croatian funds through market timing. The results, indicated a lack of market timing abilities of Croatian funds. Estimation was held through testing Treynor-Mazuy and Henriksson-Merton model over the sample of ten Croatian Mutual Fund.

Tripathy (2017) worked on a data from India with daily observation over the period of August 2008 to August 2014. The purpose of the study was about investigating the performance of mutual fund and selecting and timing skills of the fund's managers. The study used a wide risk adjusted return measures such as Sharpe model, Treynor's model, Jensen model, information model, and M-square model. In addition to Sortino ratio, Treynor'-Mazuy model and Henriksson-Merton model. The results showed a good performance and management skills after applying the above measures. The results also showed evidence of persistence of mutual fund performance in the long run.

Another point of view related to mutual funds, where Statman (2000) aimed to compare the conventional mutual funds with the social responsible mutual funds, besides comparing Domini Social Index (DSI) with the S&P 500 index. Data over the period from 1990 – 1998 was used in this comparison. DSI – which is an index of socially responsible stocks – and socially responsible mutual funds, both did better than the market and conventional mutual funds respectively. Although this results, both funds could not outperform the S&P 500 index.

Another examine to the risk-adjusted returns, Sharpe ratio was used by Boudreaux et al. (2007) on ten international fund for the period from September 2000 through September 2006. Comparing data to US mutual funds by putting the benchmark as the reported performances of US mutual funds reported by MorningStar, the results showed that international funds outperform the benchmark. The conclusion was an outperformance of foreign mutual funds over US mutual funds, and this is strong evidence of the advantage of diversification.

To summarize this section, whether mutual funds can outperform the market or not. Most of the above literatures shows that mutual funds can outperform the benchmark to some extent. Then not few of the studies proved that mutual funds couldn't guess the market and outperform it. Most of the studies attributed this outperformance to the superior skills of the fund managers to make the correct decisions.

When mutual funds take larger risk, it seems to earn return and outperform the market. It is clear that diversification was good to such mutual funds. This was showed in the studies of international mutual funds and socially responsible mutual funds, these special kind of funds outguess the market.

3.4 Mutual funds during the Global Financial Crisis 2007-2008

As this thesis conducted about Saudi Arabia mutual fund's performance after, during, and after crisis. It is need to have a general overview on the crisis. In this section, I will go through how the crisis started, what factors led to it, and the consequence of this. A better understanding on how everything happened will be provided in this section.

It could not be understandable how the global financial crisis affected mutual fund, without standing 2008 financial crisis, which had changed the economic landscape all over the world. In this section of the thesis a general overview to the financial crisis will be provided, how it started, what factors cause the first bubble and the later burst, and what are the consequences. In this part, a better understanding on how it happened and the results on investors.

3.4.1 The global financial crisis 2007/2008: An overview

Most agree that the root of the financial crisis is in U.S. housing market, when leading mortgage lender filed for bankruptcy and the ABX indexes – it is an index measuring the overall value of subprime residential mortgage market as well as measuring their performance- expected of default risk (Thakor, 2015). The U.S. financial markets crisis spread to many countries around the world, while the U.S. markets barely survived, the world economies had affected too.

Although the global economy suffered from financial crisis many times, but 2008 was the worst since the recession in 1930s. Different articles, papers. Books, and media releases had spoken extensively about the causes of the financial crisis. The interest rate announced

from Federal funds as follows: in 2000 the interest rate had been raised three times from 5.5% to 6.5%; in 2001 the interest rate was eased more than 10 times to end the year with a rate of 1.75%; the interest rate kept declining in the following two years at a rate of 1.25% and 1% respectively; after that Fed decided to raise the interest rate several times to end 2004 with 2.25%, 2005 with 4.25%, and 2006 with 5.25%; then a decline occurred in 2007 with 4.25% as an interest rate; and kept declining in 2008 as Fed lowered interest rate 7 times to December as 0.25% (www.thebalance.com). This is mandatory to be noticed that interest affect asset prices - and in this issue, houses were the major assets that playing a strong role – and borrowers' net worth and lending conditions (Claessens et al., 2014)

Banks started competed in offering poor customers loan offers with leniency, banks offer homes at high prices, while they can pay the installment in 20 to 30 years. Brokers did not see any problem at that time, since the real estate prices are rising, and banks compensate the borrower's inability to pay the installments by reselling it to another at a higher price. When financial institutions offered real estate mortgage to poor citizens who probably had bad banking records, which in this case make the loans highly risk. Investors came and bought these mortgage loans from banks because they saw it very profitable, then they securitize the loans and make them tradable on the stock exchange. Later on, Investment banks came to collect these mortgage-backed securities in to what they called CDO as a short term of collateralized debt obligation. In 2007 poor citizens could not be able to pay the monthly payments, at the end the house is available to be for others. With hundreds of such cases, supply become greater which led to falling of house prices.

Government should have to take an action and interfere when both the scale of distressed house hold debt was large and banks in distress are paralyzed due to not having insufficient

capital to cover the losses (Claessens et al., 2014). Despite the intervention of central banks to support the liquidity market, but equity markets and financial institutions collapsed. Gál (2011).

To conclude this as Gál (2011) summarized the causes of the crisis to three major factors: (1) Low interest rate policy applied by U.S. Federal Reserve. (2) Risky mortgage loans and housing policy (3) rely on government rapid intervention and banks engaging in risky activities.

However, some experts extended their work to argue that psychological factors and economical behavior of individual and institutional firms was a factor played a role to financial crisis. This point of view regarding financial crisis was given from Gärling et al.'s (2009) work.

3.4.2 Crisis spreading to the world

The global system is an integrated and interdependent system, which made the crisis transferred from U.S. to other country quickly. Many international banks and institutions held investments in U.S. banks that declared bankruptcy. These banks were suffering losses due to their failure to resell homes and this increased the number of bankruptcy. Some powerful banks took advantage of the crisis to acquire rival banks such as JPMorgan Chase, which acquired Bear Stearns with the help of the Federal Reserve.

Dungey and Gajurel (2014) concluded their study founding an effects from the crisis that happened in the US equity market to other countries'' equity markets, weather that country belong to the advanced economies or the emerging economies. The real estate burst in US followed by sharp decline in US equity market indexes. After that the crisis spread globally.

3.4.3 Effect of Crisis

GCC countries concerned carefully to that happened in US and the depreciation of their projects, investments, and assets abroad. Many banks announced an asset write-down. United Arab Emirates (UAE) Central Bank asked UAE banks to declare any exposure to Lehman. Leading banks in Gulf Countries announced officially their losses, such as Abu Dhabi Commercial Bank, Gulf Investment Corp. and Arab Banking Corporation.

While Moosa in (2010) investigated whether GCC stock markets followed US market during crisis, he explained that GCC stock markets kept on rising during the crisis as investors liquidated their assets in US and oriented to emerging markets – including GCC countries -, but at the same time foreign investors started to withdraw their GCC assets as they need liquidation, and here the GCC markets collapsed and could not sustain GCC markets positions. Although the study discussed that the price of oil had explained some of the disparities in the GCC markets, it could not show the relationship between the oil's price and stock prices in GCC markets, or explain why a leader oil country like Saudi Arabia had a low correlation between it's stock prices and oil price comparing to stocks price in Abu Dhabi stock market. While the correlation of the Dow Jones was higher with Saudi stocks price than Abu Dhabi stocks price.

3.5.4 Effect of Crisis in Saudi Arabia

Different institutions conducted argent analysis and reports to capture and contain the effects of this crisis. For example, The Gulf Research Center (GRC) reported in 2008 that Tawuniyya the leading Saudi Insurance company, lost two thirds of its value since 2008.

Saudi markets' indexes had vibrated since 2008, the stock market in Saudi Arabia suffered underperformance. Saudi Arabian Monetary Authority (SAMA) choose an active approach by cut its repo rate to 5.5% for the first time and reduce reserve requirements from 13% to 10%.

GRC report supported by the study of Ghassan et al. (2013), where they concluded that the negative impact of global financial crisis led to reduce the Saudi Arabian economic growth for almost three years. although the crisis impacts were limited, the Saudi economy did not recover automatic.

Researchers conducted empirical studies to assess the performance of mutual funds all over the world. And to my knowledge, when focusing on Islamic world, the majority of papers were comparing the performance of Islamic mutual funds verses the conventional mutual funds.

Arif et al. (2019) evaluated the performance of mutual funds in Pakistan. 30 conventional mutual funds in comparable to 30 Islamic mutual funds. As Sharpe and Teynor ratios were higher on Islamic mutual funds than conventional mutual funds, that means better performance. But Jenson Alpha of Islamic mutual fund was lower than the conventional ones. The result of data envelopment analysis gave Islamic mutual funds higher result. The study concluded that the conventional funds were underperformed the Islamic ones in the study period. As rules and regulations could affect mutual fund's manger's decisions. The study did not examine the skills of the fund's manager, to give more explanation to the underperformance of conventional mutual funds, as these funds followed regular regulations, while Islamic mutual funds must run by Islamic rules. The study could reach better results, if it selected a suitable relative benchmark to compare with, so the analysis

can go deeper and examined more ratio such as Modigliani and Modigliani ratio as an extend and more useful version of sharp ratio results.

Market benchmark was used in some papers, for example, Mansor and Bhatti (2011) investigated the performance of 128 Islamic mutual funds for the period of January 1990 to April 2009 in relation to its conventional fund and the respective market benchmark. They employed risk-adjusted return measures in their investigation.

Providing a guideline to mutual funds' managers in Pakistan was the main purpose of the Afza and Rauf (2009) study, besides pointing out the significant variables influencing the fund performance that could help small investors. The limited work done on Pakistani mutual funds, encouraged Afza and Rauf to go further in this study and consider it as a guideline. Measuring the Pakistani funds using Sharpe ratio with different attributes, pooled time-series and cross-sectional data. The results showed that lagged return, liquidity and 12B-1 had significant impact on fund's performance.

The Mutual funds market has been growing considerably in Kingdom of Saudi Arabia, and the papers on Saudi Mutual Funds have increased as well.

An overview study on 182 Saudi mutual fund done by Dabbeeru (2016). The evaluation was conducted during 6 months where the Saudi market was very volatile. The study analyzed Saudi Mutual Funds over five variables (1) Mutual fund managers, (2) base currency (3) Category (4) Subcategory, and (5) Classification.

Merdad, Hassan and Alhenawi (2010), applied the performance measures on Saudi mutual funds managed by HSBC in Saudi Arabia, to find that Islamic funds underperform the conventional funds during the study period. However, they outperform the conventional

funds during the financial crisis period. Further measure could be used on the selected funds in this study to give more insights on the selected funds such as Fama's measures or even Carhart four factor model. One of the paper purposes was to find the differences between the Islamic and non-Islamic mutual funds, if exist, thus Fama's and Carhart measure could help solving this.

More recently, Merdad, Hassan, and Khawja (2016) used 143 Saudi mutual funds, to examine if Shariah low comes with benefits when investing in mutual funds. They have concluded that Saudi funds showed neither a cost nor a benefit. Studies related to Saudi mutual funds are still being conducted through several researchers. Al-Rahahleh and Bhatt (2017) analyzed the performance of Saudi equity mutual funds using different risk-adjusted measures.

Chapter 4: Data and Methodology

4.1 Introduction

In this chapter, a detailed description of the data collection, followed by methodology used to conduct the empirical part of the study. First, the data details are described along with the data collection process description. Later, the techniques applied to measure the mutual fund performance is described.

4.2 Data

The main purpose of this study is to examine to which extent the performance of the Saudi Arabia mutual fund industry outperforms the market in the period from January 2000 through December 2018 and whether mutual fund affected by the financial crisis of 2007-2008 or not. In addition, the study will examine the performance of MF before and after financial crisis. Other goals were achieved through the study such as examine the price linkages between Saudi equity mutual funds and the local stock market index.

Evidences - form Tadawul website – shows that Saudi mutual funds are highly concentrated on equities. These equity mutual funds represent nearly 66% of the total funds as shown in table 3 below. From this main category - equity mutual funds -, this study investigated in the sub-category that had high

concentrations of funds and in the type of funds that primarily investor selected, which is as shown in table 3 is the local equity funds. Beside the high percentage of local equity funds as the main reason to select this category to test its performance, this study followed a study done by Kumaraswamy and Al Ezee (2018), where they studied the performance of the major contributor of the Saudi mutual funds, the equity mutual fund.

Table 3: Category wise funds in Saudi Stock Exchange

	Funds by category	*No of funds*
1	equity funds - local	86
2	equity funds - international/Global	16
3	equity funds - GCC	19
4	Equity funds - US	3
5	Equity funds - European	3
6	Equity funds - Asian	5
7	Equity funds - Arabian	14
8	Bond/debt funds - international	11
9	Bond/debt funds - local	3
10	money market funds - international	4
11	money market funds - local	11
12	funds of funds	5
13	balanced funds - international	2
14	balanced funds - local	1
15	real estate funds	8
16	other funds	2
Total		220

Source: Saudi Stock Exchange: Tadawul(2020)

This study used data generated through Bloomberg Terminal and Eikon, accessed at the British university in Dubai. The data set utilized in this study consists of 12 open-end mutual funds; on 73,526 raw observations representing daily data for the 12 mutual funds, observed over the period from

January 2000 to December 2018. The selection criteria used when screening the data is that the assets in selected funds should be all equity. This criterion result in 12 Saudi mutual funds used out of 247 of Saudi Arabia mutual funds. The final sample consists of 12 equity mutual funds. These funds are listed in table 4:

Table 4:List of Funds used in the analysis

1	ANBI - Al-Arabi Saudi Equity Fund
2	Alawwal Invest Saudi Equity
3	Alawwal Invest Saudi Financial Equity
4	HSBC Saudi Equity Fund
5	HSBC Saudi Equity Income Fund
6	HSBC Saudi Financial Institutions Equity Fund
7	Riyad Blue Chip Equity Fund
8	Riyad Saudi Equity Fund
9	SAIB Saudi Equity Fund
10	Samba Capital Al Fareed Saudi Equity Fund
11	Samba Capital Al Musahem Saudi Equity Fund
12	Saudi Fransi Saudi Istithmar Equity Fund

The study examines equity funds in Saudi Arabia, which offer the most widely accepted benchmarks and risk-adjusted approaches.

Lückoff (2011) suggested in the field of mutual fund performance, that the price of mutual fund shares is the most crucial data for studies like this one. This study focuses on open-ended equity mutual funds with a long study period using daily data.

For the 12 funds, the Net Asset Value (referred to as NAV) also generated. The NAV is the market value of all fund's assets, subtracting the liabilities,

then dividing the result on the number of shares outstanding. This NAV of mutual funds does not include sales charge (j.p.morgan, 2019). The daily closing price of Tadawul Index was selected as a benchmark. And as the risk free rate, the Saudi Arabia short term interest rate (Saudi Interbank Offered Rate SIBOR) 3 months was selected from www.ceicdata.com.

Historical daily data of equity mutual fund prices are collected from Eikon database, while the Saudi stock market index Tadawul obtained from Bloomberg database for the period 2000 to 2018. The risk free rate obtained from www.ceicdata.com was Saudi Arabia short-term interest rate SIBOR 3 months. The study divides the period in to three periods: a pre-crisis period (January 2000 to November 2007), during the crisis period (December 2007 to May 2009), and after the crisis period (June 2009 to December 2018).

This study differs from previous studies in that the other studies of mutual funds uses monthly and annual data over short-time periods and a lot of studies focus on Islamic mutual funds. This study focuses on open-ended equity mutual funds with a longer study period using daily data.

The difficulty during the process of gathering the data was finding the total assets of the funds. It seems that there is a significant data availability constraint, although Eikon and Bloomberg terminal was of great help for

finding the data. However, as the total assets of the mutual funds are the net asset value of a fund, the study observes them through the analysis of the NAV.

From the data described above, the returns of the funds' industry and the benchmark Tadawul.

Regarding the risk, the total risk (standard deviation) and systematic risk (beta) are estimated to find traditional measures such as Sharpe ratio, Treynor ratio and Jensen's alpha.(am.jpmorgan.com)

4.3 Empirical methodology

Many studies and empirical research about the mutual funds' performance have been conducted, which are mentioned in literature review. They all examined different aspects and aimed to show different results. Different methods and models were used to reach the outcomes. This study used some of these methods as described in detail in the literature review to analyze the performance of Saudi Arabia mutual fund industry over the period from 2000 to 2018 including an important event, the last financial crisis. To reach this clear picture of the differences and changes during 18 years and specifically due to the crisis, the period in this study starting from January 2000 until

December 2018 split into three parts named pre-crisis, during crisis, and after crisis.

First a comparison of raw returns from the mutual fund industry in Saudi Arabia to the returns of the market – which is represented by Tadawul index as a benchmark-. As this study examined Saudi mutual funds that consist of equity securities only as an asset, the most suitable benchmark for this study is the Saudi market – Tadawul-. A comparison of the movement of NAV of the mutual fund industry and the price of Tadawul index is started with, and visualized by appropriate charts.

Second, the study continued with the risk return adjusted measures. An ordinary least squared (OLS) regression analysis of each mutual fund and the mutual fund industry towards Tadawul – the Saudi market – is conducted to come out with beta of the mutual fund in each period.

Finally, and for further deepen analysis, the study examined the one factor model known as CAPM to found out Alpha. Furthermore, known measures of mutual fund performance like Share (1966), M2, Treynor (1965), and Information Ratio are also used. These measures were explained in the literature.

In addition, some minor questions can be answered during the analysis from the methods used, such as to show if the Saudi mutual fund industry outperformed the market or not. And if it did, was it due to the added risk or to the management skills in expecting exceptional performance? Is the difference between measures used significant?

The entire period is from January 2000 to December 2018. As Woertz (2008) announced in Gulf Research Center report that the period of the recession in the word started in December 2007 and lasted until May 2009. It last 18 months, which was the longest recession after the one from the World War II. In addition, Frankel (2009) in his NBER working report divided the study period as per the table 5 below.

Table 5:The study period

Period	Duration
Before	January 2000 to November 2007
During	December 2007 to May 2009
After	June 2009 to December 2018

4.3.1 Measurement of return (Arithmetic Average)

Using the daily closing prices for the mutual funds and the benchmark (Tadawul) to derive the rate of return. The rate of return calculated using the following formula:

$$R = \frac{P_{t+1} - P_t}{P_t} \qquad (4.1)$$

Where, R is the rate of return, Pt+1 is the price in time t+1 of the fund, and Pt is the price of the fund at time t.

Thus, the daily returns of the Saudi equity mutual funds was calculated in the three periods. Similarly, the market returns also calculated using the arithmetic average return.

4.3.2 Relative to Benchmark Method

It is basically compares elements from the Saudi mutual fund with the corresponding elements from Tadawul index. The elements that put in comparison in this study are two elements: (a) the returns and (b) the net asset value (NAV) or the closing price. This is the first method used in the early studies for mutual funds' performance.

(a) A comparison between the returns of the mutual funds to the return of the benchmark index. Tadawul index has been used a benchmark in this

study. This make an easy track to the changes in the return of Saudi mutual funds as well as those in Tadawul returns. Moreover, their visualization is easily seen through charts. The limitation of this method is the lack of finding the risk associated with the returns.

(b) The price of the mutual fund is presented through net asset value (NAV) of that fund. Thus, its movement during the analysis period is taken in the consideration. This NAV of the Saudi mutual funds is compared to the closing price of Tadawul index.

The period under the analysis is going to be divided into three parts, the crisis occurrence period being the breaking point. Thus, the periods are: before the U.S financial crisis, during, and after the financial crisis. Through this, the impact of the U.S. financial crisis on the Saudi mutual fund can be examined closely.

4.3.3 Adjusted Risk-Return methods

As researches and literature review considered, this study uses the risk-adjusted measures used by Sharpe (1996), M2 (1997), Treynor (1965), and Jensen (1967). These measures are described in detail in literature review. The procedure of applying these measures is mentioned below.

4.3.3.1 Ordinary least squares (OLS) regression

The OLS (Ordinary least squares) regressionsexamine the relationship between of the return of the Saudi mutual fund based on single market models as follows:

$$R_i = R_f + \beta_i(R_m - R_f) + \varepsilon_i \quad (4.2)$$

Where $R_i$is the expected return of the mutual funds, R_f is the risk free rate (SIBOR 3 month), β_i is the systematic risk of the mutual fund industry's return towards the benchmark, R_m is the Tadawul expected return. The $(R_m - R_f)$ is the market excess expected returns.

By using the OLS regression analysis of Saudi mutual fund return and market return, the beta (β) which is the slope of this relationship is found for the three periods. By this, it can be possible to see how the systematic risk changed during the crisis.

Other statistical measures can be generated from the regression, such as (R_2), and standard error of mutual fund industry as compared to the market.

The Capital Asset Pricing Model (CAPM) is the second measure used. This will provide a statement of the relationship of the expected risk premium on the mutual funds industry and their systematic risk. This formula is mentioned above.

As an extension of CAPM, Jensen's Alpha is calculated as described in the literature review. When it is compared to the CAPM, Jensen's Alpha will add value to the study, because it will provide the excess return of the mutual funds industry, which will be seen when positive alpha is found. This keeps seeing the performance of mutual fund industry through the behavior of the funds' managers in terms of selecting the fund's asset.

Alpha is the intercept from the OLS regression of the Saudi mutual fund industry excess returns on Tadawul index excess returns, which is based on CAPM.

Other performance measures are used as well. A study conducted on Greek balanced mutual fund by Artikis (2003), used techniques such as Treynor and Sharpe ratio to evaluate the performance of these Greek funds.

4.3.3.2 Sharp ratio

Sharpe ratio is the most popular one, which can be found using the following formula:

$$Sharpe\ ratio = \frac{(R_i - R_f)}{\sigma} \qquad (4.3)$$

where R_i is the return of the mutual fund, R_f is the risk free rate of return and σ is the standard deviation of the mutual fund's return.

Several studies used this measure to test the performance of mutual fund including Boudreaux et al. (2007), Hasan and Ahsan (2016), and Tripathy (2017).

4.3.3.3 Treynor ratio

According to Treynor (1958), to account for the systematic risk (the beta), Treynor ratio is utilized. It is used to determine whether investing in mutual fund is outperforming the market or not. The larger the Treynor ratio the better the fund's performance. Treynor ratio helps finding performance measure that all investors can apply regardless their personal risk preferences.

The formula used to apply this measure is:

$$Treynor\ ratio = \frac{(R_i - R_f)}{\beta} \qquad (4.4)$$

where R_i is the return of the mutual fund, R_f is the risk free rate of return and β represents the systematic risk of the mutual fund.

It is still a technical measurement method in recent years, Tan (2015) used Treynor ratio- among other methods- to measure South Arfica's mutual fund among other measures and investigate their performance.

4.3.3.4 Modigliani-Modigliani measure (RAP or M2)

After that the measurement developed in sharp angle buy Modigliani and Modigliani (1997). The M2 measure is a measure of risk-adjusted returns of funds. It measures the fund's return after adjust the risk of the fund relative to the benchmark. It is an extend of Sharpe ratio. It is mainly used to determine how well the fund reward investors for their level of risk taken. The formula applying this measure is:

$$m2 = Sharpe\ ratio\ X\ \sigma_{Benchmark} + R_f \qquad (4.5)$$

where R_f is the risk free return

σ is the standard deviation of the benchmark

Boudreaux et al.(2007), Hasan and Ahsan (2016), and Tripathy (2017) used M2 to measure the MF in their studies.

4.3.3.5 Information ratio (IR)

Information ratio (IR) is another measure used to reveal the way of how the return changed during the study periods in contrast to Tadawul index.

Through these measures different questions can be answered like: Did the mutual funds outperform the market? If yes, in which period?. The IR will only be positive when the mutual fund outperforms the benchmark.

The formula applying the measure is:

$$IR = \frac{(R_i - R_m)}{\sigma_{i-m}} \quad (4.6)$$

where R_i is the return of mutual funds, R_m is the return of Tadawul index, and σ_{i-m} is the standard deviation of the difference between returns of the mutual funds and Tadawul index, which is also known as tracking error.

Each one of these measures has new information to add to the study analysis and it should compute all of them to provide a complete performance picture of the funds.

4.4 Summary

This study uses Sharpe ratio, Treynor ratio, M2, and IR to measure the Saudi mutual fund, over the period from 2000 until 2018. The data collected from Eikon and Bloomberg for 12 equity mutual fund. Comparing these measures to the market was the main purpose of the study to test whether these funds outperformed the market, or not. This study is consistent with Redman, Gullett and Manakyn (2000) study in using the risk-adjusted returns in the examination, as they examined 5 international mutual funds.

Chapter 5: Results and Findings

5.1 Introduction

In this chapter of the thesis, the analysis of the data will be presented. The data consisted of daily net asset values (NAV) expressed on per share basis (unit price). The Tadawul All Share Index (TASI) is used as a benchmark for the market return for the study period of January 2000 to December 2018. The fund's data was generated from Eikon, while (TASI) data was exported from Blomberg.

The study included only mutual funds that met the criteria of: all the mutual funds in the study should be managed in Saudi Arabia and all should be open-ended, actively managed, invested in local equity. Furthermore, the study did not take any fund that classified as Islamic fund or the funds that have been created after or during the crisis. All mutual funds required to have at least 1,000 day of continuous return data for the study period. From total number of equity funds, 12 met all the criteria with a total of 73,526 daily observations.

The study performs risk adjusted performance measures using Sharpe ratio, Treynor rations, Jensen's alpha, and M2 measurements through utilizing daily data of S.A equity mutual fund returns. The results of the performance of Saudi Arabia equity mutual funds and Saudi stock market (Tadawul) highlighted in the next chapter. The conclusions are provided at the end of the study.

5.2 Performance analysis

Looking to the basic comparison between S.A mutual funds returns and the benchmark (Tadawul), table 5.1 which shows the change in return through the three periods (before, during, and after the crisis). As Sourd (2007) mentioned that return can be calculated using the formula in its simplest shape.

$$R= (P_1-P_0)/P_0 \qquad (5.1)$$

where:

R Denotes the return of the period

P_1 denotes the price of the ending of the period

P_0 denotes the price of the beginning of the period

Table 6: Percentage change of average returns of mutual funds and benchmark over the three periods of the study

		Pre-Crisis	*During-Crisis*	*After-Crisis*
1	ANBI - Al-Arabi Saudi Equity Fund	-	-160.47%	177.72%
2	Alawwal Invest Saudi Equity	-	8.50%	87.02%
3	Alawwal Invest Saudi Financial Equity	-	-309.75%	85.11%
4	HSBC Saudi Equity Fund	-	-178.45%	133.15%
5	HSBC Saudi Equity Income Fund	-	-279.02%	115.17%
6	HSBC Saudi Financial Institutions Equity Fund	-	-198.26%	120.55%
7	Riyad Blue Chip Equity Fund	-	-192.97%	137.44%
8	Riyad Saudi Equity Fund	-	-192.97%	137.44%
9	SAIB Saudi Equity Fund	-	-210.00%	131.78%
10	Samba Capital Al Fareed Saudi Equity Fund	-	-910.76%	130.40%
11	Samba Capital Al Musahem Saudi Equity Fund	-	-266.04%	129.35%
12	Saudi Fransi Saudi Istithmar Equity Fund	-	-213.33%	141.64%
	Average		**-258.63%**	**127.23%**
	Benchmark (Tadawul)		-228.04%	116.11%

In table 6, most Saudi Arabia mutual funds returns experienced a sharp decline in return, the average change in return was a decline by 258.63 percent from Pre-Crisis period to

During-Crisis period, while Tadawul's returns declined by 228.04 percent. Looking to the progress from During-Crisis to After-Crisis, there was an increase in the returns of Saudi mutual funds by 127.23 percent while Tadawul returns increased by only 116.11 percent. The recovery from the crisis of the S.A mutual fund was better.

Data shows much higher return of most Saudi mutual fund than the benchmark (Tadawul) before the crisis. The market faced a higher drop during the global financial crisis. The recovery of the market was much stronger as the increase in returns of Tadawul after crisis was 68 point, while the Saudi mutual fund moves upward by 46.5 points only. Moreover, TAdawul returns were higher by 4.17 points when comparing it with Saudi equity funds, which had 26.17 points on average after the crisis, as shown in table 7. The result so far concluded that when concerning the returns, the mutual funds is less sensitive to the changes on the market.

Table 7: Total return a change of returns of mutual funds and benchmark over the three periods of the study in (%)

		Pre-Crisis	*During-Crisis*	*After-Crisis*
1	ANBI - Al-Arabi Saudi Equity Fund	257.6	-19.7	88.6
2	Alawwal Invest Saudi Equity	-38.6	-30.1	-83.0
3	Alawwal Invest Saudi Financial Equity	-58.4	-33.2	-84.1
4	HSBC Saudi Equity Fund	758.1	-35.8	106.1
5	HSBC Saudi Equity Income Fund	764.6	-33.8	65.2
6	HSBC Saudi Financial Institutions Equity Fund	103.7	-51.8	60.8
7	Riyad Blue Chip Equity Fund	530.9	-40.2	46.2
8	Riyad Saudi Equity Fund	551.8	56.1	-48.8
9	SAIB Saudi Equity Fund	78.9	-35.3	71.7
10	Samba Capital Al Fareed Saudi Equity Fund	-98.0	-36.5	71.3
11	Samba Capital Al Musahem Saudi Equity Fund	-93.5	-38.2	76.3
12	Saudi Fransi Saudi Istithmar Equity Fund	387.1	53.8	-56.1
	Average	**262.01**	**-20.38**	**26.17**
	Benchmark (Tadawul)	362.1	-37.7	30.3

The same data shows that Saudi's mutual funds registered an outperformance in the three periods before, during and after 2007-2008 crisis comparing to the market. The difference between the funds return and the market can give an indication of the performance of the

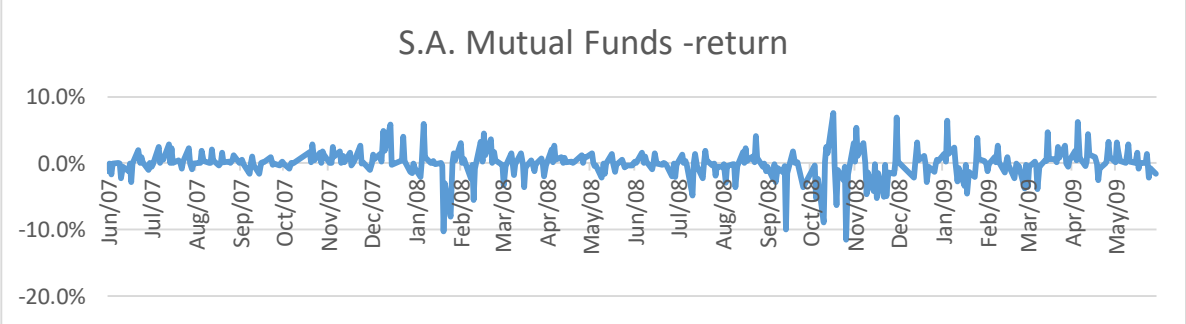
fund. However, according to the return data, some funds underperformed the market in these periods, but on average the funds outperformed the market. Results of fund's performance are shown in table 8.

Table 8: (Out/Under) performance of mutual funds over the three periods of the study (%)

		Pre-Crisis	*During-Crisis*	*After-Crisis*
1	ANBI - Al-Arabi Saudi Equity Fund	-104.4	18.0	58.3
2	Alawwal Invest Saudi Equity	3.3	7.6	-113.3
3	Alawwal Invest Saudi Financial Equity	-420.5	4.5	-114.4
4	HSBC Saudi Equity Fund	396.0	1.9	75.7
5	HSBC Saudi Equity Income Fund	402.5	3.8	34.9
6	HSBC Saudi Financial Institutions Equity Fund	49.6	-3.2	30.4
7	Riyad Blue Chip Equity Fund	212.9	-2.5	15.8
8	Riyad Saudi Equity Fund	189.7	-37.7	30.3
9	SAIB Saudi Equity Fund	22.0	2.4	41.4
10	Samba Capital Al Fareed Saudi Equity Fund	-210.7	1.2	40.9
11	Samba Capital Al Musahem Saudi Equity Fund	-413.6	-0.5	45.9
12	Saudi Fransi Saudi Istithmar Equity Fund	25.0	91.5	-86.5
	Average	**12.6**	**7.3**	**5.0**

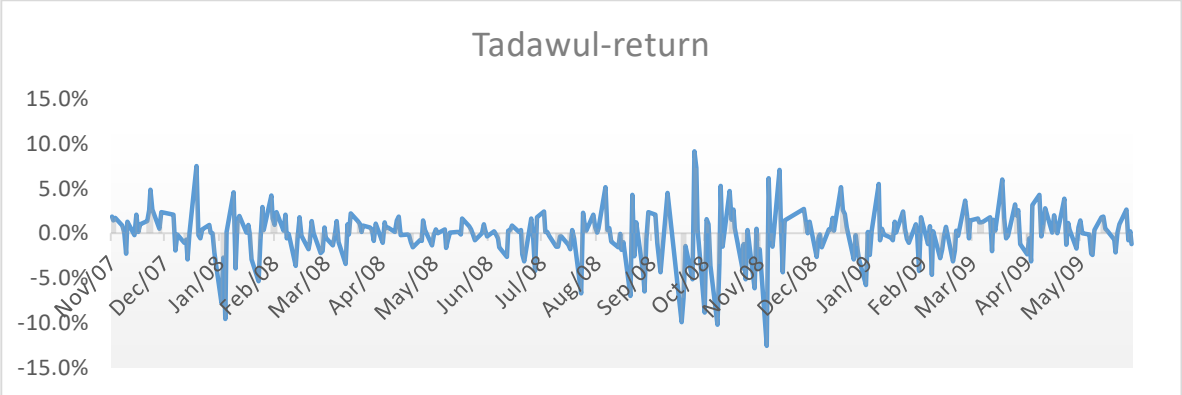
From Fig.8 a considerable change in the return of Mutual Fund industry in Saudi Arabia is noticed in the period from mid-2008 to mid-2009. Fig.9, reveals the same pattern by the performance of Tadawul's index.

Figure 8: Returns of Saudi Arabia Mutual Funds



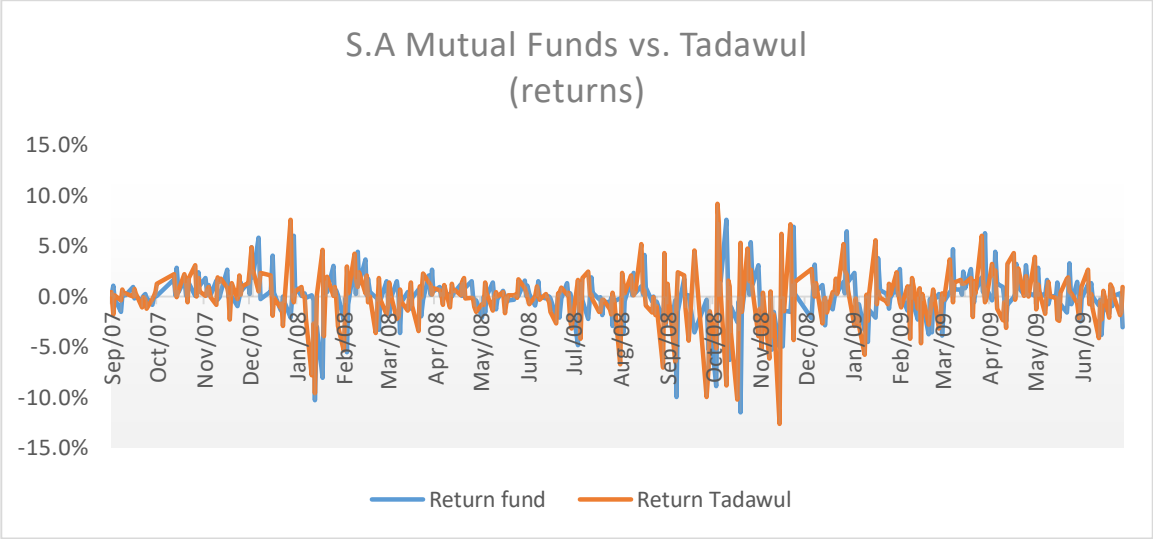
Source: Data extracted from Eikon, and generated through Excel

Figure 9: Returns of the benchmark (Tadawul)



Source: Data extracted from Bloomberg Terminal, and generated through Excel

Figure 10: Comparison of the Mutual fund and Tadawul returns



Source: Data extracted from Bloomberg Terminal and Eikon, and generated through Excel

Fig.10, shows the average returns of the mutual funds against Tadawul (the benchmark). The mutual funds' performance was better than the benchmark performance during the study time as a general view. This result is consistent with Abdelbaki (2010) who concluded that GCC countries tolerated the effects of the financial crisis; he assigned this result to the big reserves of foreign currencies achieved by GCC countries.

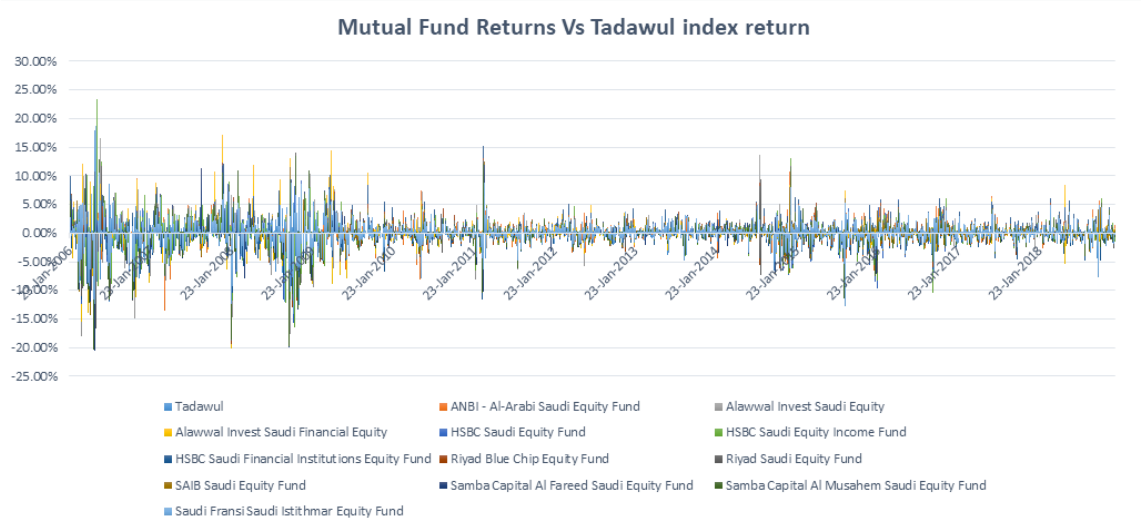
Looking closely to the mutual fund in this study the average daily return is shown in the table 9. The ranking of the mutual funds based on the average daily return the study period is also shown in the table. 50% of the Saudi mutual fund had higher average daily return that the market, 1 mutual fund only had average lose over the study period, while 5 mutual fund only could not reached the market average return over the study period. The average daily return of Tadawul index was 0.0420 percent.

Table 9: The rank of Saudi Mutual Funds based on average daily return over the study period in (%)

	Saudi Arabia Mutual Fund Name	***Average Daily Return***
1	HSBC Saudi Equity Fund	0.0675
2	HSBC Saudi Equity Income Fund	0.0651
3	Riyad Saudi Equity Fund	0.0592
4	Saudi Fransi Saudi Istithmar Equity Fund	0.0561
5	Riyad Blue Chip Equity Fund	0.0532
6	ANBI - Al-Arabi Saudi Equity Fund	0.0488
7	HSBC Saudi Financial Institutions Equity Fund	0.0355
8	Samba Capital Al Musahem Saudi Equity Fund	0.0353
9	SAIB Saudi Equity Fund	0.0343
10	Samba Capital Al Fareed Saudi Equity Fund	0.0081
11	Alawwal Invest Saudi Financial Equity	0.0051
12	Alawwal Invest Saudi Equity	-0.0262
	Tadawul	0.0420

Fig.12 shows that all Saudi Mutual Funds' return were in line with Tadawul as they all have average return near the benchmark.

Figure 11: The 12 Saudi MF returns Vs Tadawul index return



Source: Data extracted from Bloomberg Terminal and Eikon, and generated through Excel

An important figure in comparing mutual funds with market is the NAV (closing price). Table 10 concludes the changes in closing prices of Saudi mutual funds and Tadawul over the study period.

Table 10: Percentage change in the NAV/closing prices

	Pre-Crisis	*During-Crisis*	*After-Crisis*
Mutual Funds(Average)	-	-25%	12%
Tadawul	-	24%	-2%

Source: Data extracted from Bloomberg Terminal and Eikon, and generated through Excel

The average NAV of the three periods in table 5.5 shows that Tadawul index prices during-crisis increased by 24% and it is referred to the reserves of foreign currencies achieved in the past few years that have helped increase the ability to bear the effect of the financial effects as Abdelbaki (2010) concluded. While, local mutual funds prices experienced a significant decrease of 25% during crisis. The mutual funds recover is noted with 12%, while a slight decline faced the market index after the crisis marking a negative 2%.

Figure 12: Net Asset Value of S.A mutual funds Industry

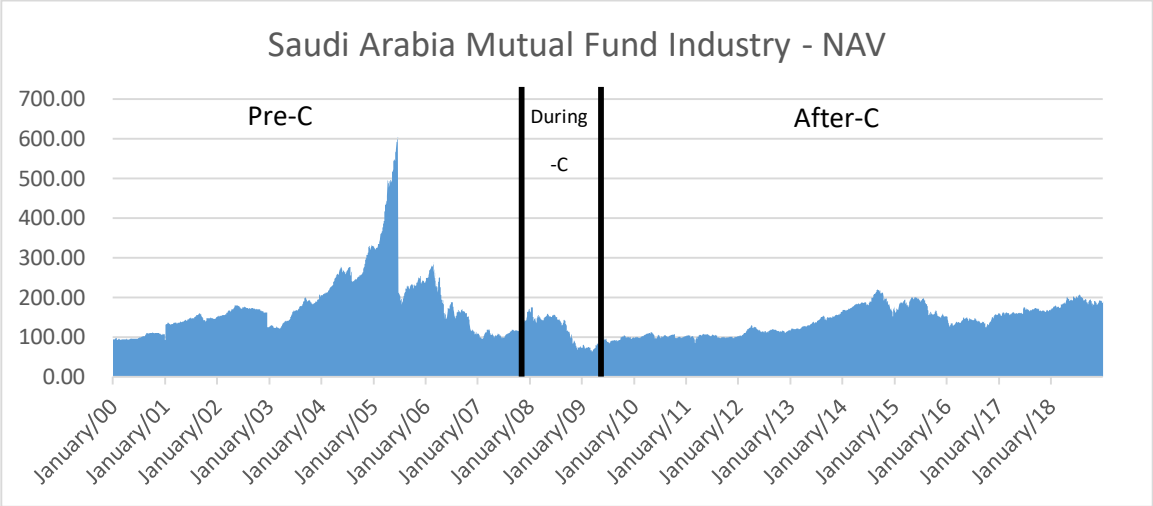
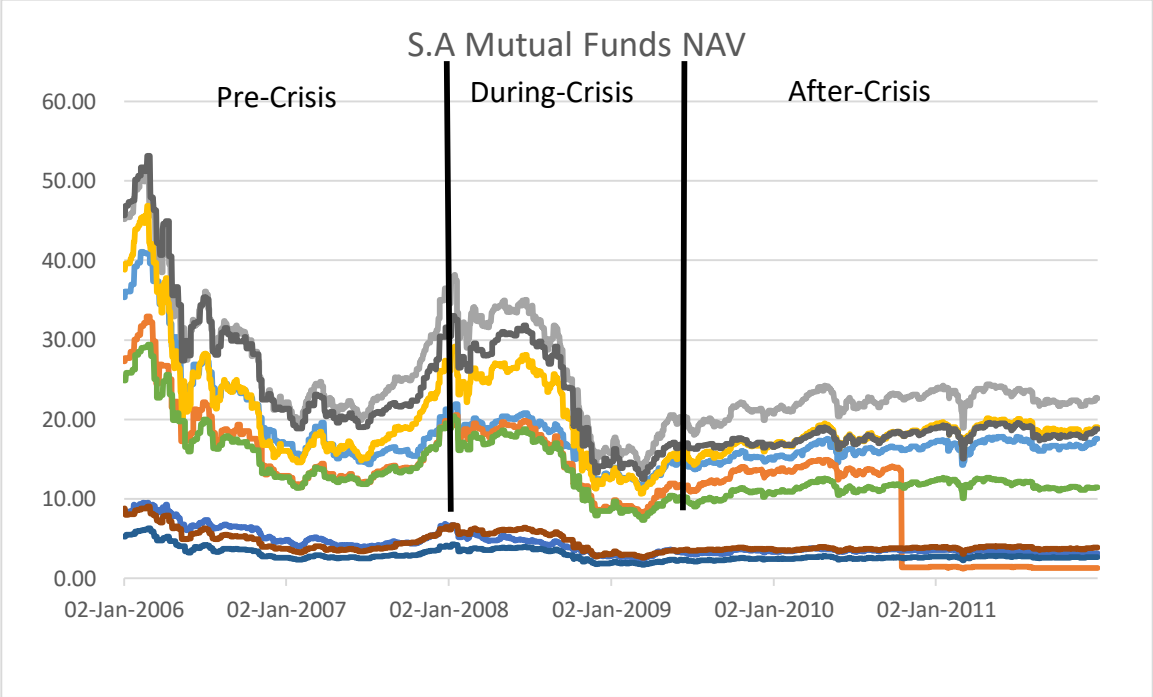


Figure 13: Net Asset Value of S.A mutual funds individually



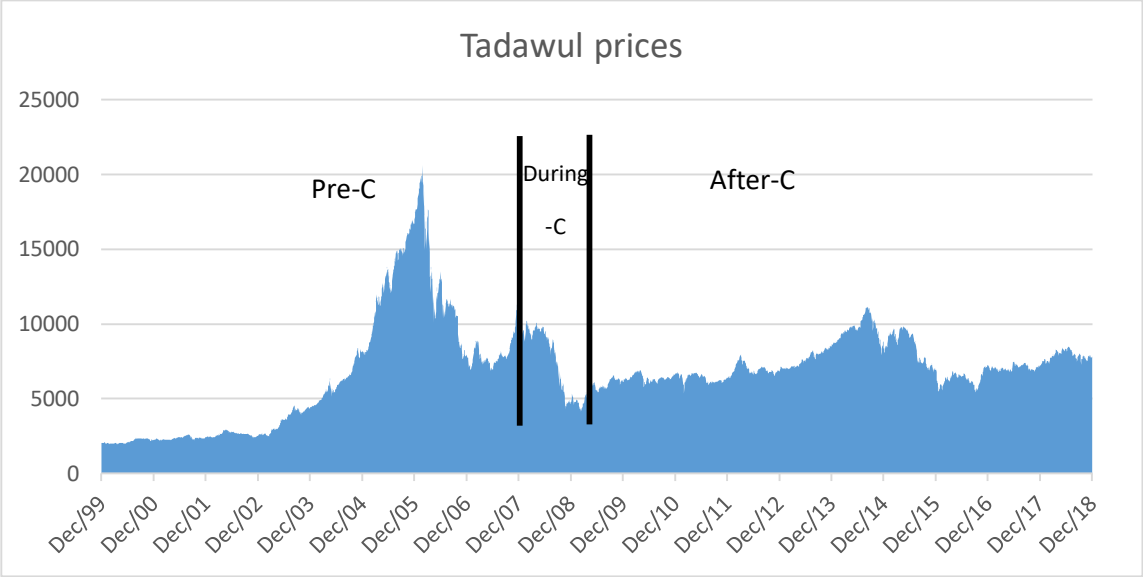
Source: Data extracted from Eikon, and generated through Excel

Figure 12, provides a visual examination of the NAV of the Saudi's funds industry, Figure 13 shows Saudi funds, both figures can show the impact of 2007-2008 financial crisis had on Saudi mutual funds. The pre-crisis period shows a growth until the end of 2007. A

period of instability ensued after the end of 2007. Companies went bankrupt and merged, resulting in a fall of funds NAV.

The same can be said for the benchmark Tadawul index in fig. 14 over the three periods. The mutual funds consists of stocks as the fund's assets, and these stocks are part of the market index, thus, as these stock's prices decline, the NAV of the mutual funds does so.

Figure 14: Net Asset Value of Tadawul



Source: Data extracted from Bloomberg, and generated through Excel

The total risk associated with return is shown in table 11. The mutual funds are ranked in decreasing order on the basis of total risk (standard deviation) over the study period. The total risk of Tadawul during the study period was 23.87% which is lower than 8 mutual funds.

Table 11: The rank of Saudi Mutual Funds based on total risk

	Saudi Arabia Mutual Fund Name	*Total Risk σ*
1	Riyad Saudi Equity Fund	39.05
2	HSBC Saudi Equity Income Fund	37.86
3	Samba Capital Al Fareed Saudi Equity Fund	37.57
4	Alawwal Invest Saudi Financial Equity	34.24
5	ANBI - Al-Arabi Saudi Equity Fund	26.21

6	Riyad Blue Chip Equity Fund	25.50
7	SAIB Saudi Equity Fund	24.47
8	HSBC Saudi Financial Institutions Equity Fund	24.31
9	Saudi Fransi Saudi Istithmar Equity Fund	23.82
10	Alawwal Invest Saudi Equity	23.68
11	Samba Capital Al Musahem Saudi Equity Fund	23.66
12	HSBC Saudi Equity Fund	22.54

Table 12: summary statistics from the regression

	Pre-Crisis (Jan '03 to Nov '07)	*During-Crisis (Dec '07 to May '09)*	*After-Crisis (Jun '09 to Dec-'18)*
Observation (average)	1,464.25	301	2,188
R Square(average)	0.01565	0.01910	0.14614
Standard Error (average)	0.0205	0.0288	0.0128

Source: Data extracted from Bloomberg Terminal and Eikon, and generated through Excel

An average of the summary of statistic features extracted from separate regressions of the 12 mutual funds shown in table 12 with Tadawul's returns being the independent variable and mutual fund returns being the dependent variable. The table shows how many observations in each period, the R squared and the standard error.

As the recession in the world due to the crisis lasts for 18 months according to the national BUREAU of economic research report (2010), the observation related to each period represent the days for which a period accounts.

As the R-squared allows to measure the value of the mutual fund against the benchmark. The results indicate that the mutual funds returns are not close to the benchmark. In other words, the mutual fund return variation is not explained by the variation in Tadawul returns, and the Saudi mutual funds in this study were well diversified. This low R-squared means funds' managers could build a fund of low R-squared stocks, which helped

achieving the required diversification because this fund was unlikely to act like the market index.

Looking in details to the R-Squared of each mutual fund in this study over the examination period, the Saudi mutual fund could be ranked as presented in table 13. while SAIB Saudi Equity Fund showed the most diversified fund as it had the lowest R-Squared, the Alawwal Invest Saudi Financial Equity Fund return's movement depended on the market factor and it was the least diversified fund as it had the highest R-Squared.

Table 13: The rank of Saudi Mutual Funds based on R-Squared over the study period

	Saudi Arabia Mutual Fund Name	*R-squared*
1	Alawwal Invest Saudi Financial Equity	0.0096
2	HSBC Saudi Equity Income Fund	0.0112
3	Samba Capital Al Fareed Saudi Equity Fund	0.0123
4	Saudi Fransi Saudi Istithmar Equity Fund	0.0162
5	Alawwal Invest Saudi Equity	0.0213
6	Riyad Saudi Equity Fund	0.0387
7	HSBC Saudi Financial Institutions Equity Fund	0.0402
8	Riyad Blue Chip Equity Fund	0.0428
9	ANBI - Al-Arabi Saudi Equity Fund	0.0435
10	HSBC Saudi Equity Fund	0.0438
11	Samba Capital Al Musahem Saudi Equity Fund	0.0461
12	SAIB Saudi Equity Fund	0.1200

On average, as shown in table 14 the intercept from the regression shows that if tadawul (the benchmark) did not change, the increase in Saudi mutual funds industry returns is estimated to be 0.00064 percent during the pre0crisis period, a negative 0.00089 percent during the crisis period, and after the crisis the intercept was 0.00014.

Table 14: The α generated from regressions over the study period

	Saudi Arabia Mutual Fund Name	***Before Crisis***	***During Crisis***	***After Crisis***
1	ANBI - Al-Arabi Saudi Equity Fund	0.00075	-0.00033	-0.00033

2	Alawwal Invest Saudi Equity	-0.00079	-0.00067	-0.00020
3	Alawwal Invest Saudi Financial Equity	0.00041	-0.00075	-0.00023
4	HSBC Saudi Equity Fund	0.00110	-0.00085	0.00037
5	HSBC Saudi Equity Income Fund	0.00123	-0.00102	0.00027
6	HSBC Saudi Financial Institutions Equity Fund	0.00103	-0.00177	0.00025
7	Riyad Blue Chip Equity Fund	0.00104	-0.00105	0.00019
8	Riyad Saudi Equity Fund	0.00094	-0.00087	0.00032
9	SAIB Saudi Equity Fund	0.00080	-0.00086	0.00019
10	Samba Capital Al Fareed Saudi Equity Fund	-0.00021	-0.00086	0.00025
11	Samba Capital Al Musahem Saudi Equity Fund	0.00051	-0.00074	0.00021
12	Saudi Fransi Saudi Istithmar Equity Fund	0.00083	-0.00090	0.00043
	Average	**0.00064**	**-0.00089**	**0.00014**

The null hypothesis in the regression states that there is no relationship between the Saudi mutual fund and Tadawul and that Tadawul movement or changes does not affect the mutual funds. In other words, the null hypothesis states that the returns of mutual fund in Saudi Arabia are due to chance and are not affected by market (Tadawul). While the alternative hypothesis states that the independent variable (Tadawul's return) did affect the dependent variable (S.A mutual funds' return) and any changes in mutual fund' returns is not by chance and due to changes in Tadawul's return. The level of statistical significance is often expressed by p-value of our α, p-value is between 0 and 1. The smaller the p-value, the stronger the evidence that null hypothesis should be rejected, and accept the relationship between the two variables.

As more than 86% of the p-value of alpha is not significant as shown in table 15 it is clear that there is no relationship between S.A mutual funds' return and Tadawul's return, despite of the fact that these mutual funds are equity funds are consisted from equities in the Tadawul itself. Other factors than the market, have strong effects on MF returns.

Table 15: The p-value of the α generated from regressions over the study period

	Saudi Arabia Mutual Fund Name	*Before Crisis*	*During Crisis*	*After Crisis*	*Over the whole period*
1	ANBI - Al-Arabi Saudi Equity Fund	0.0254	0.7981	0.2541	0.1618
2	Alawwal Invest Saudi Equity	0.5403	0.6977	0.6614	0.7750
3	Alawwal Invest Saudi Financial Equity	0.4850	0.6906	0.6166	0.0662
4	HSBC Saudi Equity Fund	0.0007	0.5958	0.1659	0.2122
5	HSBC Saudi Equity Income Fund	0.0017	0.5361	0.2901	0.1171
6	HSBC Saudi Financial Institutions Equity Fund	0.1506	0.2393	0.3607	0.6221
7	Riyad Blue Chip Equity Fund	0.0034	0.5623	0.4530	0.1888
8	Riyad Saudi Equity Fund	0.0037	0.6160	0.1979	0.1764
9	SAIB Saudi Equity Fund	0.2142	0.6005	0.2760	0.7417
10	Samba Capital Al Fareed Saudi Equity Fund	0.8698	0.6284	0.2635	0.2635
11	Samba Capital Al Musahem Saudi Equity Fund	0.4731	0.6725	0.2756	0.1181
12	Saudi Fransi Saudi Istithmar Equity Fund	0.0164	0.5700	0.0926	0.1242
	Average	**0.2320**	**0.6006**	**0.3256**	**0.2972**

5.3 Risk adjusted performance analysis

Other methods can be used to look into more details regarding the returns of Saudi mutual funds and whether they depend on returns of Tadawul index only or other risk factors play a role. As Arugaslan, Edwards and Samant (2007) used the risk-adjusted performance measures like Sharpe ratio, Treynor ratio and M2 measure. This study applies the same measures to investigate the performance for the 12 Saudi mutual fund.

Table 16: results of CAPM

	Pre Crisis	*During crisis*	*After crisis*	*Over the whole period*
Expected return (CAPM)	2.015%	1.946%	1.314%	1.861%
Real Average return	0.072%	-0.104%	0.027%	0.037%

The CAPM model gives an estimate of what the return should have been, using the mutual risk industry beta risk. According to data used and shown in table 16, it can be seen that the average expected return from Saudi mutual funds should be 2.015 percent in the pre-

crisis period, while it really earned much lower than the expected with 0.072%. This expected return decreases during the crisis to a 1.946 percent, while in real market the funds' return registered a loss of 0.104 percent. The expectations of the return from fund kept declining slightly after crisis, as the expected return decreased to earn 1.314 percent, while the mutual fund achieved 0.027 percent as an earning. Over the whole study period, the mutual funds' return underperformed the expectations.

5.3.1 Sharpe Ratio

Following different studies in examining the risk-adjusted returns using sharpe's index like Boudreaux et al. (2007) and Kiymaz and Simsek (2017) and Arugaslan, Edwards and Samant (2007). This study tested the performance of the selected Saudi mutual funds using the same measure.

Table 17: The sharpe ratios results of Saudi Mutual Funds in the three period of the study period

	Saudi Arabia Mutual Fund Name	*before Crisis*	*During Crisis*	*After Crisis*
1	ANBI - Al-Arabi Saudi Equity Fund	11.00	-0.62	4.43
2	Alawwal Invest Saudi Equity	-0.98	-0.68	-2.39
3	Alawwal Invest Saudi Financial Equity	-1.51	-0.69	-2.40
4	HSBC Saudi Equity Fund	33.54	-0.85	5.05
5	HSBC Saudi Equity Income Fund	28.32	-0.80	3.18
6	HSBC Saudi Financial Institutions Equity Fund	3.22	-1.33	2.82
7	Riyad Blue Chip Equity Fund	22.60	-0.86	2.30
8	Riyad Saudi Equity Fund	24.27	1.13	-2.67
9	SAIB Saudi Equity Fund	2.68	-0.83	3.86
10	Samba Capital Al Fareed Saudi Equity Fund	-1.64	-0.79	3.94
11	Samba Capital Al Musahem Saudi Equity Fund	-2.10	-0.81	4.23
12	Saudi Fransi Saudi Istithmar Equity Fund	15.97	1.18	-3.10
	Average	**11.28**	**-0.50**	**1.60**
	Tadawul	14.07	-0.92	1.28

Table 17 presents the results of Sharpe ratio of the 12 funds in the study in the three periods. It is clear that most funds earned return excess of the risk free rate per unit of total risk in the periods before and after crisis this ratio allowed investors to better isolate the profits associated with the risk taking by investing in these funds. Most of the funds performed better before the crisis than after it. 4 funds couldn't even reach the risk free rate of return before the crisis. 2 of them maintained in the negative zone during and after the crisis. On average Saudi mutual funds was able to generate higher return on a risk-adjusted basis before the crisis.

Comparing these funds to the benchmark (Tadawul), the funds performed better during the crisis and after it, as the funds earn 0.5 percent less than the risk-free rate relative to the funds' standard deviation while Tadawul lost 0.92 percent below the risk-free rate relative to the market standard deviation. After the crisis the funds earned 1.6 percent more than the risk-free rate, while in the same time Tadawul earned only 1.25 percent more than the risk-free rate.

Investors should look for the funds that had higher Sharpe ratio in its history, as this indicate a better performance. Data showed that Riyad Saudi Equity Fund was the best fund to invest before and during the crisis according to Sharpe ratio. Its investors earned higher return comparing to other funds and the market as well. Alawwal Invest Saudi Equity and Alawwal Invest Saudi Financial Equity kept underperforming the market in all the periods, investors in these funds should move their investments to other funds.

5.3.2 M2 Ratio

As we have some negative results when calculating sharpe ratio, it was meaningful to calculate M2 measure. Adjusting the risk of the funds relative to Tadawul – the benchmark- and to the risk free return, we can measure the performance of the return of funds by using M2 measure. M2 is another extension from Sharpe ratio, which determined how well the fund rewards investors for the risk taken. M2 made it easier to compare the difference between the funds.

Table 18: The M2 ratio results of Saudi Mutual Funds in the three period of the study period

	Saudi Arabia Mutual Fund Name	*before Crisis*	*During Crisis*	*After Crisis*
1	ANBI - Al-Arabi Saudi Equity Fund	2.83	-0.25	0.81
2	Alawwal Invest Saudi Equity	-0.39	-0.27	-0.40
3	Alawwal Invest Saudi Financial Equity	-0.36	-0.27	-0.40
4	HSBC Saudi Equity Fund	8.60	-0.35	0.92
5	HSBC Saudi Equity Income Fund	7.26	-0.32	0.59
6	HSBC Saudi Financial Institutions Equity Fund	1.14	-0.55	0.52
7	Riyad Blue Chip Equity Fund	6.12	-0.35	0.43
8	Riyad Saudi Equity Fund	6.23	0.51	-0.45
9	SAIB Saudi Equity Fund	0.95	-0.34	0.71
10	Samba Capital Al Fareed Saudi Equity Fund	-0.52	-0.32	0.72
11	Samba Capital Al Musahem Saudi Equity Fund	-0.54	-0.33	0.78
12	Saudi Fransi Saudi Istithmar Equity Fund	4.11	0.53	-0.53
	Average	**2.95**	**-0.19**	**0.31**
	Tadawul	3.62	-0.37	0.30

When comparing these 12 funds in table 18, only 2 of them could perform well during the crisis, as they had positive M2. On average, after considering taking the same risk of Tadawul, Saudi mutual funds generated better returns before the crisis – as M2 equaled to 2.95 percent – than after the crisis – where the M2 was equal to 0.31 percent-.

It is noticeable that, when the formula of the M2 measure was applied to the benchmark, the benchmark's M2 measure equaled the return. Both ratios – Sharpe and M2 – shows that fund and market were in better positions outside the crisis – in the periods before and after the crisis-.

5.3.3 Treynor Ratio

Another risk adjusted measure to compare diversified funds is Treynor ratio. Whereas Sharpe ratio measures excess return of fund over risk free return per unit of total risk, Treynor ratio measure the same excess return but per unit of risk related to market – systematic risk- or β. Table 5.14 presented the summary of Treynor ratios for the funds over the three periods.

On average using Treynor ratio, the study concluded that Saudi mutual funds performed better than the market in the three periods. Funds and market could not earn the same as the risk free rate during the crisis. The Teynor ratio results are illustrated in table 19.

Table 19: The Treynor ratios results of Saudi Mutual Funds in the three period of the study period

	Saudi Arabia Mutual Fund Name	*before Crisis*	*During Crisis*	*After Crisis*
1	ANBI - Al-Arabi Saudi Equity Fund	96.37	-1.82	1.54
2	Alawwal Invest Saudi Equity	-38.78	-7.17	-1.53
3	Alawwal Invest Saudi Financial Equity	23.25	-8.38	-1.47
4	HSBC Saudi Equity Fund	53.15	-1.85	3.17
5	HSBC Saudi Equity Income Fund	132.58	23.04	2.03
6	HSBC Saudi Financial Institutions Equity Fund	7.72	-3.61	1.78
7	Riyad Blue Chip Equity Fund	29.98	-3.28	1.39
8	Riyad Saudi Equity Fund	34.75	4.43	-1.61
9	SAIB Saudi Equity Fund	4.94	-2.63	0.99
10	Samba Capital Al Fareed Saudi Equity Fund	-9.58	-3.10	2.52
11	Samba Capital Al Musahem Saudi Equity Fund	-6.47	-1.39	1.29
12	Saudi Fransi Saudi Istithmar Equity Fund	31.25	3.58	-5.13
	Average	**29.93**	**-0.18**	**0.41**

	Tadawul	3.60	-0.40	0.28

Treynor ratio is consistent with other measures analyzed up until now. The negative result during the crisis meant that for every one percent of undiversified risk taken, the mutual funds lost 0.18 percent on average, and improved a lot after it was losses and earned 0.41 percent on average. The value was greater before the crisis when the funds earned 29.93 percent on average. Considering only market risk, HSBC Saudi Equity Income Fund had the higher Treynor ratio which means that this fund had the best risk-adjusted return compared to market and other funds in the study. This fund maintained its position during and after the crisis. Investors should consider this fund in their investment decision.

While Alawwal Invest Saudi Equity fund had negative performance in the three period according to Sharpe ratio and Treynor ratio, Alawwal Invest Saudi Financial Equity fund had better performance before the crisis when considering the market risk – it had positive Treynor ratio before the crisis-

5.3.4 Information Ratio

As pointed by Reilly and Brown (2011) the IR will be positive when the fund's manager outperforms its benchmark, in this case Tadawul. In other words, it measures the fund manager's skills, abilities, and decisions to generate excess returns relative to the benchmark. Majority of funds in this study could outperform the benchmark in the three periods. It is obvious that decisions before the crisis was correct in most funds. On average funds' managers had the skills to outperform Tadawul by 1.33 point before the crisis, which sharply drop to 0.31 point during the crisis. However, this value improved and increased to 0.34 percent after crisis. Results of Information Ration are listed in table 20.

Table 20: The Information ratios results of Saudi Mutual Funds in the three period of the study period

	Saudi Arabia Mutual Fund Name	*before Crisis*	*During Crisis*	*After Crisis*
1	ANBI - Al-Arabi Saudi Equity Fund	-3.06	0.35	3.15
2	Alawwal Invest Saudi Equity	0.06	0.12	-3.22
3	Alawwal Invest Saudi Financial Equity	-8.74	0.07	-3.24
4	HSBC Saudi Equity Fund	12.63	0.03	3.27
5	HSBC Saudi Equity Income Fund	11.11	0.06	1.53
6	HSBC Saudi Financial Institutions Equity Fund	1.14	-0.06	1.31
7	Riyad Blue Chip Equity Fund	6.65	-0.04	0.72
8	Riyad Saudi Equity Fund	6.10	1.54	-3.59
9	SAIB Saudi Equity Fund	0.54	0.04	2.95
10	Samba Capital Al Fareed Saudi Equity Fund	-3.09	0.02	1.92
11	Samba Capital Al Musahem Saudi Equity Fund	-8.09	-0.01	2.85
12	Saudi Fransi Saudi Istithmar Equity Fund	0.76	1.60	-3.52
	Average	**1.33**	**0.31**	**0.34**

IR helped determining the performance of mutual funds during the periods under examination, by representing the ability of the management of the Saudi mutual funds to make excess returns compared to tadawul market. HSBC Saudi Equity Fund had the higher IR after the crisis as well as higher Sharpe and Treynor ratios. The study concludes that this fund had good manager who could come out from the crisis with the higher returns.

The diversified assets in the funds made them in better position during the crisis. The drop in the prices of the stocks of Saudi market during the financial crisis, did not affect the mutual fund that much as they still accomplished excess return during that crisis, this earning completed its growth after the crisis. Although this earning during the crisis, the government still put its regulations to control the field. This actions improved the excess return which is seen in the after crisis period.

The tracking error - which is the standard deviation - during the crisis period was the highest as assets had an elevated risk during that period. Risk represented through standard

deviation decreased after the crisis as it went on average from 0.59 percent during crisis to 0.23 percent after the crisis. The details of the tracking error is shown in table 21.

Table 21: The Standard deviation of the outperformance (the difference in returns between fund and the benchmark) results of Saudi Mutual Funds in the three period of the study period

	Saudi Arabia Mutual Fund Name	*before Crisis*	*During Crisis*	*After Crisis*
1	ANBI - Al-Arabi Saudi Equity Fund	0.34	0.52	0.18
2	Alawwal Invest Saudi Equity	0.59	0.63	0.35
3	Alawwal Invest Saudi Financial Equity	0.48	0.66	0.35
4	HSBC Saudi Equity Fund	0.31	0.56	0.23
5	HSBC Saudi Equity Income Fund	0.36	0.63	0.23
6	HSBC Saudi Financial Institutions Equity Fund	0.44	0.55	0.23
7	Riyad Blue Chip Equity Fund	0.32	0.62	0.22
8	Riyad Saudi Equity Fund	0.31	0.61	0.22
9	SAIB Saudi Equity Fund	0.41	0.58	0.14
10	Samba Capital Al Fareed Saudi Equity Fund	0.68	0.62	0.21
11	Samba Capital Al Musahem Saudi Equity Fund	0.51	0.57	0.16
12	Saudi Fransi Saudi Istithmar Equity Fund	0.33	0.57	0.25
	Average	**0.42**	**0.59**	**0.23**

The correct decisions of HSBC Saudi Equity Fund's manager which represented by the high IR ration, led to higher Sharpe and Treynor ratios after the crisis, which indicate that this fund was more favorable risk/return fund and it was better to invest in, that led the fund to cover the crisis better than other funds.

5.4 conclusion

This chapter analyzed the data extracted from Eikon and Blomberg. Starting by comparison of changes of average returns of Saudi MF and the benchmark, where the data showed that the MF experienced sharper decline in return than Tadawul during the crisis, while these funds recover their losses better than Tadawul. Looking to the performance of each fund,

on average the funds outperformed the market in the three periods. Sharpe ratio, Treynor ratio, M2, and information ratio are applied as a risk-adjusted return measures.

Chapter 6: Conclusion

6.1 Introduction

This study assesses the performance of 12 equity mutual funds in Saudi Arabia in the period from 2000 until 2018. The study investigated the performance of these funds using traditional comparison of returns and NAV between the funds and the benchmark (Tadawul). Also the study tested the performance of the funds using Sharpe ratio, Treynor ratio, M2 measure, and information ratio as a risk-adjusted measures. The results of Sharpe ratio and Treynor ratio reflect that on average the funds over performed the market before and during the crisis, while funds recovery was better than the market after the crisis. M2 measure's result consisted with Sharpe and Treynor ratio, where the market had better performance during the crisis.

6.2 Summary of the study

This study showed in the first chapter a background of the study and the reason of selecting Saudi Arabia to examine its mutual fund. The main research problem is identified as Do Saudi Arabia managed mutual fund?. Other objectives of the study are also mentioned in the introduction. As well as the areas where this study is significant. The study uses daily data and have been done over a long period. Chapter two presented an overview of the mutual

fund industry. The definition, types, categories, benefits, features, and the development of mutual funds in the world, the GCC and Saudi Arabia are all presented in chapter two. Chapter three presented different studies about mutual funds. Studies that showed the development of the evaluation of the mutual fund's performance, and the studies conducted to examine the performance of different fund around the world. Chapter four shows the methodology and measures to be applied on the sample of the twelve mutual funds, with some details about each method. In chapter five, the results of the empirical study are illustrated. Results of investigations through the measures mentioned are put on place in this chapter.

When comparing the Saudi mutual funds and the Saudi market(Tadawul) in terms of NAV and change in average return, the study found that the market has changed less than the funds when the crisis occurred, while the funds have recovered their losses better than the market after the crisis. The R square in the study proved that there are other factors play roles in the MF performance than the market. This result is consisted with the p-value of alpha, which were no significant in more than 86% of the results, this is a strong evidence that there is no relationship between S.A mutual funds' return and Tadawul's return. Using CAPM model, the funds – on average – could not meet its expectations in any of the three periods in the study – before, during, and after

the crisis-. Taking in consideration the total risk, the Sharpe ratio shows that most funds could earn return more than the risk free rate per unit of total risk in the period before and after the crisis. Most funds could not reach that during the crisis. On average funds earned less than the market before the crisis, while funds lost less than the market during the crisis, funds could recover the losses better than the market after the crisis. Results from M2 measure and Treynor ratio are consist with the results of Sharpe ratio. Managers of most funds could take correct decisions during the study period. On average the positive IR ratio concluded that funds had good managers.

6.3 Practical Implications

The implication of this study is important to many stakeholders. Stakeholders in Saudi Arabia like (government regulators, investors, and fund's managers) have an interest in better understanding the mutual funds' performance. The findings of this study are helpful in their decisions about mutual funds.

Regulators should know the performance of funds and what affects them to evaluate the relevance regulations on economy and investors.

Mutual funds' management can review the study to gain more experience in analyzing their fund's performance and take future decisions to make their funds be more attractive. Managers of the funds are willing – after looking to

the study results – to take some risks or give up some expected returns to seek a greater chance of return.

Investors face a large market of mutual fund, investments and wide offers of asset investment. Thus, investors consider study like this to value their investment and take corrective decisions as well. Also they should be interesting in their choice of investment and wish to see how active their funds were. Investors should be more concentrate on the information about the funds management, thus they need to know how to see how the fund's managers manage the funds comparable to Tadawaul is important. This study helps the investors to take decision about their funds, and according to the results and historical data, they can move their investment from an underperformed fund to one that outperformed the market -at least.

The results shall enhance the perception of the stakeholders such as investors, managers and market regulators of what affects the return performance of equity mutual funds in Saudi Arabia.

6.4 Limitations of the paper

It is definitely that the study had some limitations, in spite of that this study supply information about Saudi Arabia mutual fund performance for investors. Following, are the limitations that exist during the study:

- There is very limited research done on equity fund performance in Saudi Arabia.

- As Saudi has a significant position in the Islamic world, limited studies conducted on the conversion mutual fund.
- No consideration has been taken to transaction cost or taxation was another limitation of this study.
- The size of the sample is limited to 12 mutual funds only

6.5 Recommendations

- It is recommended that more studies analyze the conventional fund in Saudi Arabia and the Islamic world in general is conducted.
- Different benchmark is recommended as well.
- It can be recommended that the fund's manager of the mutual funds taken in this study to review the finding of the study and review their management strategies.

6.6 Future research

There are several areas for future research, some of the interesting topics are:

- Studies of the factors that affect the performance of Saudi Arabia mutual funds should take the priority of the researcher. Factors could be related to the MF industry, investment company, or to the assets of the fund.

- Linked the mutual fund performance, with the investors behavior and attitude.
- Research on rating of Saudi mutual funds and analyzing the rating of these mutual funds to give appropriate picture about each fund and it's manager skills.
- Like the performance to other areas such as innovation, business intelligence and decision making style.

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