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Evaluating the performance of active and passive investment funds in South Africa

Swartz, Shaun

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Evaluating the performance of active and passive investment funds in South Africa.

Shaun Swartz

Supervisor: Dr. Blessing Mudavanhu

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Supervisor: Blessing Mudavanhu Signature:

DECLARATION

I, Shaun Swartz, declare that the research work reported in this dissertation is my own, except where otherwise indicated and acknowledged. It is submitted for the degree of Master of Management in Finance and Investment as the University of the Witwatersrand, Johannesburg. This thesis has not, either in whole or in part, been submitted for a degree or diploma to any other universities.

Signature of candidate: Date: 27 February 2020

Abstract

This thesis addresses the core debate of active and passive funds in the local and global environment. A key component is whether active managers can use their experience and knowledge to outperform the market. The research makes use of the elements of classical economic theory to formulate a conceptual model. The conceptual model will assist in the understanding of the complexities these fund managers face. Rathbones (2019) states that “the debate over the respective merits and shortcomings of active and passive investment management may have begun several decades ago, but it remains one of the most divisive issues in the world of investing" . This report will investigate "the ability (or not) of [whether] active managers [can] beat their underlying benchmarks and whether investors should simply abandon active strategies for passive investments" (Rathbones, 2019). Rathbones (2019) believes that this debate is pivotal for an investor "when formulating an investment strategy" (Rathbones, 2019).

To bridge the theoretical and practical elements of this topic, a simple systematic research was created, which includes quantitative and qualitative factors. This research allows one to understand the dynamics of the hedge fund world. An analysis and discussion about the various components which contribute to a fund’s strategy form the preamble to this paper.
An analysis of the various key elements which contribute to a fund’s success follows, including analytical examples of funds' past performances and what key factors contributed to these funds. The key funds selected are various active and passive funds which are listed later in the paper.

Dedication and acknowledgements

I dedicate this paper to my parents, who have ensured I strive for success.

I would like to thank my supervisor, Doctor Blessing Mudavanhu, for his ongoing support, guidance, and motivation throughout the entire process.

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Chapter 1 Introduction

The purpose of this paper is to investigate the various advantages and disadvantages of active and passive portfolios for investors. The investigation will explore the benefits of investing in the different funds. Additionally, the funds' fee structures are a vital element in this paper as the fess ultimately diminish the investors return. Grinold and Khan state (1999) that “when evaluating mutual fund investment options an investor can, broadly speaking, choose between two distinct types of funds" . An actively managed fund "refers to the active role that the fund manager plays in selecting the assets to invest in and the timing associated with making these selections" (Grinold & Kahn, 1999). The goal of an actively managed fund actions is to "beat the market" (Grinold & Kahn, 1999) and achieve a return higher then its competitors. Additionally, Grinold and Khan (1999) state that due to the skill required in the management process, actively managed funds charge investors higher fees due to the expectation of higher returns. A passive investment refers to the passive role played by the fund manager. Asset selection is made by tracking a relevant index. Therefore, passive funds charge lower fees. Passive funds do not promise to outperform the market, only to match the returns offered by the market tracked by the index (Grinold & Kahn, 1999; Waldeck, 2011).

1.1 Context of the study

When determining an individual’s future and planning for their retirement, it is advisable to get an expert in the industry to plan and guide the individual for these future events. A key goal and emphasis for investment managers is “To preserve capital of immense importance when the market runs into periods of uncertainty” (Capital, 2020). An important consideration is whether the consultation fee for the investment, together with the advocated portfolio, will outperform the market. The investment should outperform the market after taking fees into consideration. Another question raised is how knowledgeable and proficient the fund managers are, and whether the fund managers have the best interest of the client. In simple terms, it encompasses the ability to invest in existing knowledge or to hand over the work to a fund manager. There are many key benefits of investing in your retirement plan such as the notion of compound interest, various tax benefits available as well as ensuring disciplined savings.

This paper provides a comprehensive review of the debate between the efficiency and benefit of an active or passive fund in a local and global context. It covers multiple topics, namely the global performance of active and passive funds, and the performance of active and passive funds in South Africa. It further focuses on the gaps in the existing literature, providing why this study is necessary. The ensuing chapters cover these broad themes (Naidoo, 2017).

The majority of the data used in this paper is obtained from the United States of America (USA) due to the trading volume experienced in the USA and the efficiency of the current market. The American market is the most liquid market in the world, and the volume of shares traded exceeds all countries. Therefore, one learns and makes assumptions based on an efficient market. Lambradis (2017) states that "almost all of the research around passive investing to date is based on data from the US, where market characteristics differ quite significantly from those in South Africa" (Lambridis, 2017). The reason for such differences is mainly due to trading volumes as well market efficiencies experience in the US.

Mutual funds are one of the fastest-growing types of financial intermediary in the American economy (GRUBER, 1996). This paper aims to identify why mutual funds, and in particular actively managed mutual funds, have grown so fast when their performance on average has been inferior to that of index funds. Investors buy actively managed open-end funds as they are bought and sold at net asset value, and thus management's ability may not be priced (Gruber, 1996). If management's ability exists but is not included in the price of open-end funds, then performance should be predictable. If investors are aware that the performance is predictable, then cash flows in and out of funds should be predictable by the same metrics that predict performance (Gruber, 1996). Finally, if predictors exist and investors act on these predictors in investing in mutual funds, the return on new cash flows should be better than the average return for all investors in these funds. This article presents empirical evidence on all of these issues and displays that investors in actively managed mutual funds may have been more rational than assumed (Gruber, 1996).

A key problem with active fund management is the fee structure. Investors may perceive to be earning a better return. However, the complex fee structures of these organisations erode the margins and return less to the investor than a passive index. A new database is required

to develop a comprehensive analysis of the mutual fund industry. Various funds hold stocks that outperform the market by 1.3% per year, but their net returns underperform by 1%. Of the 2.3% difference between these results, 0.7% is due to the underperformance of non-stock holdings, whereas 1.6% is due to expenses and transactions costs. Unfortunately, many funds select stocks to cover their costs. Evidence supports the value of active mutual fund management (Wermers, 17 December 2002).

A crucial difference between the USA and South African investment contexts is that Exchange Traded Funds (ETFs), a popular passive vehicle in the USA, have a substantial tax advantage over actively managed unit trusts. This arbitrage has contributed to the USA's move towards ETF investments. Yet, this advantage does not exist in South Africa, where the two are subject to identical tax treatment (Lambridis, 2017). South Africa lacks tax benefits received with investing in ETFs, which is a fundamental concern as there are limited investors investing in these products resulting in less economic growth . Most of the data retrieved regarding the popularity of ETFs is populated from America. Thus, the lower fees and tax benefits received determine ETFs popularity.

Respectively, active and passive investment solutions have a significant role to play in a diversified portfolio (Lerche, 2018). In order for investors to have a diversified portfolio they should not limit themselves to one form of investment, but rather they should diversify their portfolio and have multiple investment strategies to achieve their long-term objectives.

1.2 Limitation of the study

Due to limited time constraints and the complexity of the asset management world, this paper includes a sample of funds to test the above. Information of the various hedge funds is limited to the consumer as this is a key part of their strategy and this information is not publicly alliable. Thus, multiple assumptions regarding the active industry may need to be made throughout the paper. Due to the sample size being small, the data retrieved and analysed may be skewed or have an abnormal distribution. The outcome of the case study may also be biased as each individuals investment criteria is different and some individuals may place more emphasis on various fundamental factors. The data also relates to the South African market and the risk and return profiles of these investments would change from country to country.

1.3 Benefits of the study

The intention of this paper is to inform inexperienced investors about their options regarding investment decisions. Investors should have a clear understanding of whether to invest in an index fund or to pay the fees and use the services of a portfolio manager.

1.4 Summary

The introduction provides a basic understanding of how this thesis will proceed and which fund will benefit the consumer. The practical results and implications are relevant, and the investment strategy can be applied by individuals for future investments.

Chapter 2 Literature review

Sushko & Turner (2018) describes that “the investor's choice of what fund best suits him will depend on not only the track record of the fund manager but also how the manager’s style accords with their preferences and risk appetite”. Every individual has a different preference when investing; certain characteristics of fund managers may attract some investors while disinterest other investors.

Malkiel’s (1995) latest study proves that “several recent studies suggest that equity mutual fund managers achieve superior returns and that considerable persistence in performance exists". This study utilises a unique data set, including returns from all equity mutual funds existing each year. The data enables one to examine the performance and the extent of survivorship bias. Taken together, funds have underperformed benchmark portfolios both after management expenses and gross of expenses. Survivorship bias is more important than other studies have estimated. Moreover, while considerable performance persistence existed during the 1970s, there was no consistency in fund returns during the 1980s (Malkiel, June 1995). Survivorship bias is the practise of only the best performing funds surviving. Survivorship biases distort data due to the best performing funds remaining and the funds that failed to perform disappearing from the relevant study. It is challenging to examine the percent of firms that fail due to survivorship bias.

Recent developments in the theory of the pricing of capital assets by Sharpe, Lintner and Treynor allow one to formulate explicit measures of a portfolio's performance in each of the dimensions outlined above. Jensen (1968) derives and discusses these measures in detail. However, this paper confines attention *only* to the problem of evaluating a portfolio manager's *predictive ability*—that is his ability to earn returns through successful prediction of security prices which are higher than those which one could expect, *given* the level of riskiness of his portfolio (Jensen, May 1968).

The Sharpe, Treynor and Jensen alphas are key performance indicators in the world of equities. Each ratio determines a key performance area and allows the reader to compare

equities across a broad spectrum. The Sharpe ratio helps to evaluate the return of the investment compared to the risk. The Treynor expresses the reward to volatility ratio, which in essence is the same as the Sharpe regarding the perceived risk to return. The same applies to the Jensen alpha formula as this a comparison of the risk to reward on a risk-adjusted basis.

Individuals believe higher fees result in higher returns. Consequently, an inexperienced investor may invest in mutual funds despite their mediocre performance. Many investors lack advanced and current data and knowledge in the financial world. Therefore, investors may be unsure where and how to invest to their best benefit. Accordingly, managers may present figures and facts that mislead and misinform investors into believing they have the best products and can offer a superior service (Gruber, 1996). Investors cannot be perceived to have a stock-picking ability as there is an element of luck involved with this. Another reason stock-picking should not take place is that portfolios are evaluated on a risk basis. Although certain stocks may be perceived to outperform others, these stocks must fit in with the mandate of the portfolio with regards to its risk tolerance. Fund managers must also pay attention to the way the various asset classes interact with each other in terms of their correlation. (Gruber, 1996)

A costly arbitrage equilibrium in which arbitrage costs insulate mispricing, mutual fund managers have a stock-picking ability for stocks with high idiosyncratic volatility but not for stocks with low idiosyncratic volatility. This suggests that fund managers and other investors focus on high-idiosyncratic-volatility stocks because they provide a platform for stock-picking. The stock-picking ability of an average mutual fund manager declined after the growth in the number of both mutual funds and hedge funds in recent years (Ying Duan, 2009).

The end return that investors receive is lower than the index that their risk was mitigated through with active management. As a result, key performance measures such as the Sharpe ratio are needed to compare the risk per unit of return. It is unjustified to compare returns on a standalone basis but would be correct to compare returns on a risk-adjusted basis for a valid conclusion. B. P. Gilbertson (1982) recognises “this performance of eleven South African mutual funds over the eight-year period 1974 to 1981. The returns achieved by the funds ranged from 15.9% per annum to 22.5% per annum (compounded monthly); these returns

are lower than those achieved by three stock market indexes. However, when risk-adjusted measures of performance are used, it is found that the mutual funds outperformed the three indexes. There is also some evidence that at least one mutual fund consistently and significantly outperformed the indexes as well as the other funds. These findings are not consistent with the efficient market hypothesis and suggest instead that a degree of inefficiency exists in the pricing mechanism for shares listed on the JSE".

Lerche (2018) states that there is a case for both active and passive management in a South African context. Active and passive fund management both have various positive and negative features which would attract and repel certain investors, and a case can be made for both.

2.1 Arguments in favour of active management.

Hiller (2000) suggests that rational professional investors are incentivised to outperform the market and should be able to record superior results. Due to the high incentive fees that portfolio managers are paid based on performance, it is in the active managers' best interest to continually evolve their strategies to outperform their peers, market and their hurdle rate.

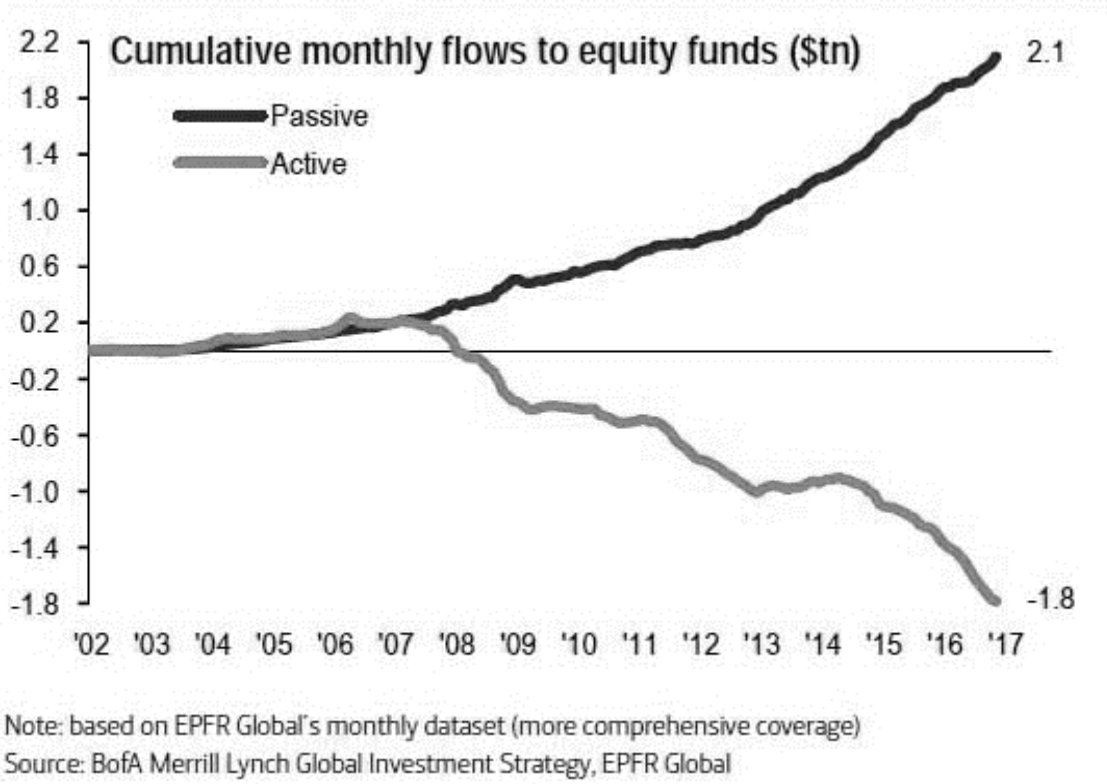
A misperception leading to an increase in passive investing is that actively managed funds with higher fees are not exceeding alpha to merit these higher fees, nor are they exceeding passive products on an after-fee basis. This misperception must be viewed on a fund by fund basis as not all managers add value. However, a case for certain funds such as Peregrine can be made as various funds have a record of outperforming the market.

An advantage of active management is that portfolio managers consider the particular requirements and risk tolerance of individual investors (Lerche, 2018). When analysing an investor's return, it is necessary to look at returns on a risk-adjusted basis and not purely on a return-basis, as various active managers have to design and execute portfolios according to the mandate specified by the investor (Lerche 2018).

The fact that active management cannot add value on average does not prove that some skilled managers cannot do so over time (Allan Gray, 2015). This statement is vital in the analysis of the active versus passive debate as there are certain key individuals or funds who

can outperform the market as a whole year on year. The fact that the industry is lucrative implies that there are many new entrants to the market which fail to suceed, bringing down the success rate of the industry as a whole.

Figure 1: Cumulative Monthly Flows to Equity Funds (USD'tn)



Note: based on EPFR Global's monthly dataset (more comprehensive coverage)
Source: BofA Merrill Lynch Global Investment Strategy, EPFR Global

Figure 1 above indicates that the flow of funds into passive funds is increasing at a higher rate. The flow of funds may lead to the end of active management in the near-term if there performance is not justified. The issue with the death of active management is that there will be no competition amongst funds as they will merely be tracking the index.

2.2 Arguments in favour of passive management

Indexing is a sensible strategy because our security markets appear to be remarkably efficient in digesting and adjusting to new information (Malkiel, 2003). Indexing is the process of replicating specific indices. Indexing provides the benefits of replicating the market and eliminates various biases such as stock-picking. Another benefit of indexing is the replication of the market risk perceived with the market requiring indexing.

An independent study by Morningstar (2008) found that the cheapest funds were at least two to three times more likely to succeed than the priciest funds. The main reason for the lower fees is that there is no need for the passive managers to perform extensive fundamental research to build an investment portfolio and can therefore charge a lower fee as the process is automated (Morningstar, 2008).

An argument can be made for the cheaper funds to succeed due to a competitive advantage in fees and larger trading volumes supplementing the lower fees. As a result of the large volumes invested in funds and minimal management required, cheaper firms can spend more money on their research and development to provide a better service to the client. On average, the industry charges 3% in fees. While 3% may not seem material, an extra 2% in fees compounded over 40 years can easily reduce your portfolio by 40% or more (Investments, 2019).

When an investor's goal is the preservation of wealth, and to actively grow their portfolio, the reduction of 40% of earnings in fees does not justify the investment, which is why the passive industry continues to grow year after year. Passively managed funds have become a significant force in the investment world. In fact, Moody's Investor Services recently indicated that at least half the assets in the US investment-management industry will be invested passively by 2024 (Prudential, 2018).

Moody's suggested that over 50% of funds will be invested in passive funds. This sector is growing due to the low barriers to entry, the simplicity of passive funds and the low fees charged.

The figures from the USA do not appear encouraging for the active camp. Statistics from various sources indicate that during most years in that country, fewer than 40% of money managers succeed in outperforming the S&P500 Index after fees (Lerche, 2018).

Lerche (2018) states less than 40% of managers can beat the market, which is a concerning statistic and displays the reason for the growth in the passive space. The more money

invested in passive funds results in the markets being more efficient, and active managers will no longer be able to exploit arbitrage opportunities.

Figure 2: Failure of Active Management

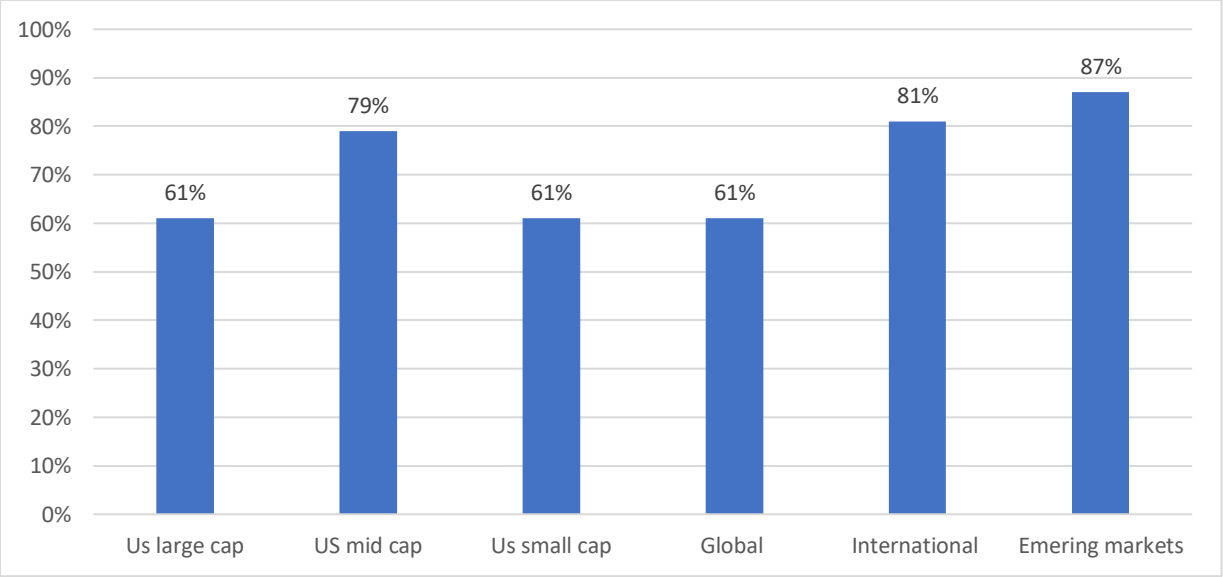


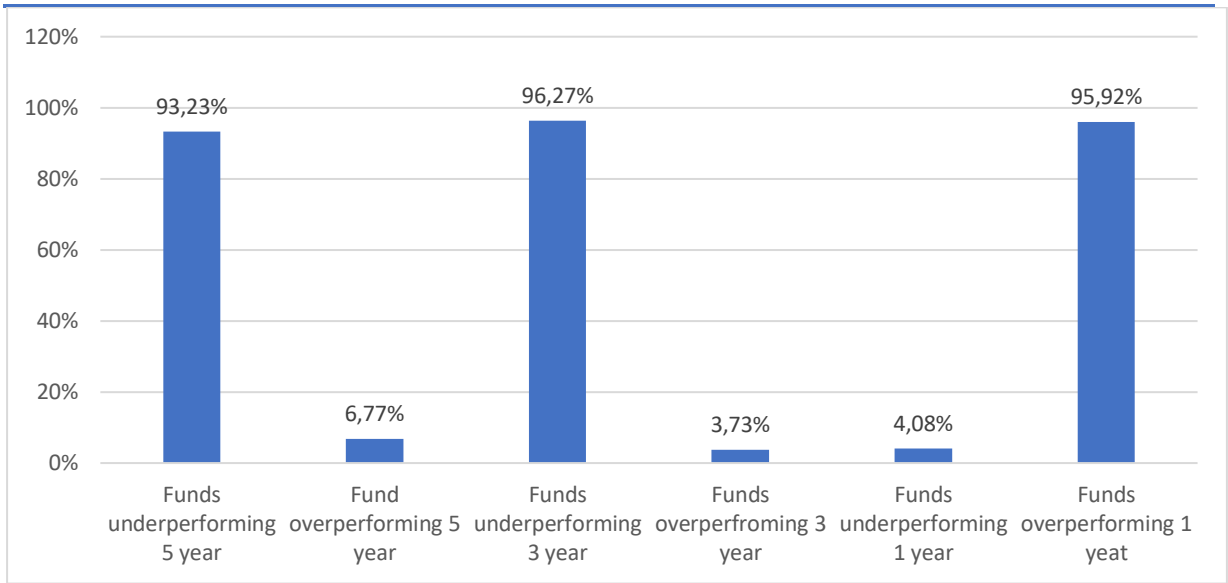
Figure 2 indicates the percentage of funds which have failed in the various industries. Most of the active funds have failed in emerging markets due to the weak form efficiency of the markets. However, active management is likely to fail in strong markets such as the US.

Passive funds provide investors with lower costs, lower investment management fees, less need to pay ongoing advice fees and platform fees (Cameron, 2018). Due to the lower fee structure, investors are satisfied with the return of the market provided that it exceeds inflation.

As stated above, investors want as much money as possible and thus prefer the lowest fee. Due to the mentality of saving and avoiding inflated costs, passive management is growing in popularity due to its low fee structure.

It is evident from Figure 3 below that few active funds can beat the S&P. Therefore, this shows why survivorship bias plays a huge role in the industry.

Figure 3: Performance against S&P



As indicated in the image above, less than 10% of fund managers outperformed the S&P. Thus, over 90% of investors paid management teams for superior performance when they could have invested in an index tracker with lower fees and earned a higher return. Secondly, the image indicates that the issue of underperformance is not limited to South Africa but is a worldwide situation. Index funds eliminate the risks of individual stocks, market sectors and manager selection due to diversification. Only stock market risk remains (Bogle, 2016).

2.3 Summary

This chapter explored and discovered the difference between active and passive funds. Additionally, the different forms of market efficiency and the investor's time horizon and risk tolerance were defined. All these factors are needed for the reader to understand what contributes to the success or failure of active funds and how to select these funds based on the above characteristics of each fund.

Chapter 3 Overview of active and passive funds

Chapter 3 introduces basic financial concepts and terms which is necessary for an individual without a financial background to understand and expand upon this research. The difference between active and passive funds, investment duration, risk appetite, liquidity and market efficiency is explored. This forms a vital understanding of the elements required, which are used in the decision making of an investment portfolio. A comprehensive explanation of the various fee structures of these is provided, showing how different structures affect the return of investment. Lastly, the key distinguishing features and differences between how fund managers select their portfolios and the benefits of diversification is examined.

Table 1: A brief summary of the key identifiers in active and passive funds

Funds	**Active funds**	**Passive funds**
Objectives	Outperform the market	Track an index
Beliefs	Investors are irrational	Information already reflected in the price
Techniques	Stock picking	Replicate the index
Decision maker	Fund Manager	Index

Table 1 shows the key distinguishing features between active and passive funds. The most noteworthy point is that the objective of actives funds is to beat the market.

3.1 Active Funds

Active funds are institutional-based organisations whose main objective is to outperform the index and diversify the client's interest accordingly to his best needs. Fund managers, brokers and corporations buy and sell stocks and other financial instruments to outperform the index and earn alpha.

An actively managed investment fund has multiple portfolio managers and a large team of experts who are actively making investment decisions for the fund. The success of an actively managed fund depends on combining in-depth research, market forecasting and the

experience and expertise of the portfolio manager or management team (Liodis, 2020). There are various elements and skill sets required to manage an active fund and the team is required to use multiple sources and skillsets to beat the market

A key benefit of an active style fund is the ability to outperform the market where passive funds restrict this ability. Further in this reading, there are arguments for and against each style of fund. The individual's choice and knowledge in determining his style of investment will influence whether an active or passive fund is appropriate.

3.1.1 Advantages and disadvantages of active funds

The following table is a brief overview showing the advantages and disadvantages of active funds.

Table 2: Advantages and disadvantages of active funds

Advantages	**Disadvantages**
Active funds are opportunistic	Higher fund management fees
Diversification of risk	Holds more cash which dampens returns
Convenience	Human error
Professional management	Minimum thresholds
Access to international markets and investments	Style issues

Table 2 displays the key advantages and disadvantages of investing in active funds. The key takeaway point from this table is how active funds are more diversified then passive funds.

3.1.2 Active fees

A major component of the investors return is affected by management and incentive fees. Active fund managers charge high fees for their services. The Industry average for active fund managers is a two and twenty fee structure. This implies that management charge a 2% management fee on funds under management and a 20% incentive fee (Trading and Pom, 2019). It is also worth noting that there are certain barriers in place to protect the investor, such as watermarks and hurdles (Trading and Pom, 2019). With a soft hurdle rate, a hedge

fund charges an incentive fee on all profits, but only if the fund's rate of return exceeds a stated benchmark. With a hard hurdle rate, a hedge fund charges an incentive fee only on the portion of returns that exceed a stated benchmark (Trading and Pom, 2019). With a high-water mark, a fund's value must exceed its highest previous value before the fund may charge an incentive fee (Trading and Pom, 2019).

It is imperative for investors to understand the financial jargon used and the implications of these hurdle rates and watermarks. Although hurdle rates and watermarks are designed to benefit the consumer, they also benefit the hedge fund as they structure their fee structure according to their past performance.

3.2 Passive Funds

Passive funds are funds which intend to replicate a specific market, industry or index. Passive funds are rebalanced accordingly to ensure the fund replicates the index to the best of its ability. The costs associated with passive investments are lower than those of active investments and the risk associated with the portfolio is the same risk that the index one is replicating holds.

Passive funds do not rely on management teams to make key decisions. They can be structured in multiple ways, and each structure will appeal to different investors. Index funds are perceived to be passively managed as they do not require human input regarding investment decisions. Due to these funds not requiring investment decisions, management is not proactively involved and therefore charge a lower fee.

3.2.1 Advantages and disadvantages of passive funds

Table 3: Advantages versus disadvantages of passive funds

Advantages	Disadvantages
Reduced cost	Stock concentration
Long term results outperform active	Volatility
Simplicity	Limited returns
Diversification	Passive funds do not anticipate changes in economic cycles
Minimises taxes	Shares in a passive fund may be overvalued

Table 3 displays the advantages and disadvantages of passive funds. Emphasis must be placed on the lower fees in the passive funds.

3.2.2 Passive fees

In contrast, passive fees are lower than active funds. The same passive fund can service multiple clients, as the mandate on these funds is general and not tailored to each individual, resulting in the lower cost.

Figure 4: Active vs passive % fees over time

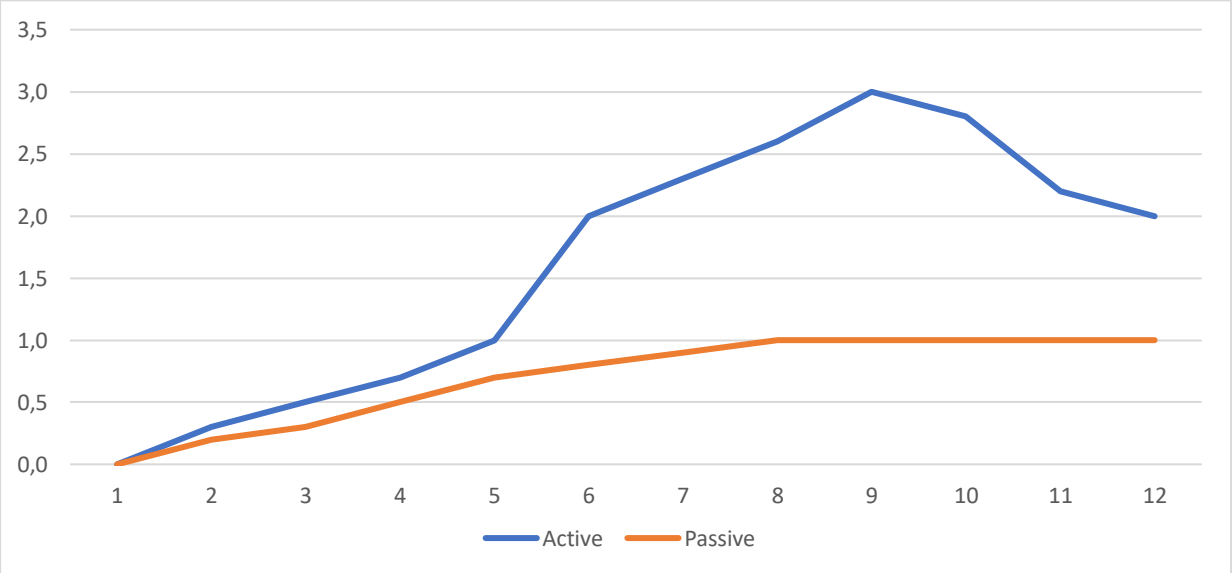


Figure 4 shows the distinguishing feature of fees between active and passive management. The fees in the passive space tend to move upwards before readjusting. Passive fees are currently trending around the 2% mark.

3.3 Duration of Investment

When determining the duration of an investment, it is vital that the investor's financial needs have been considered, and that the time horizon and cash flow needs are aligned with the investor's investment portfolio.

Figure 5: The investment strategy returns

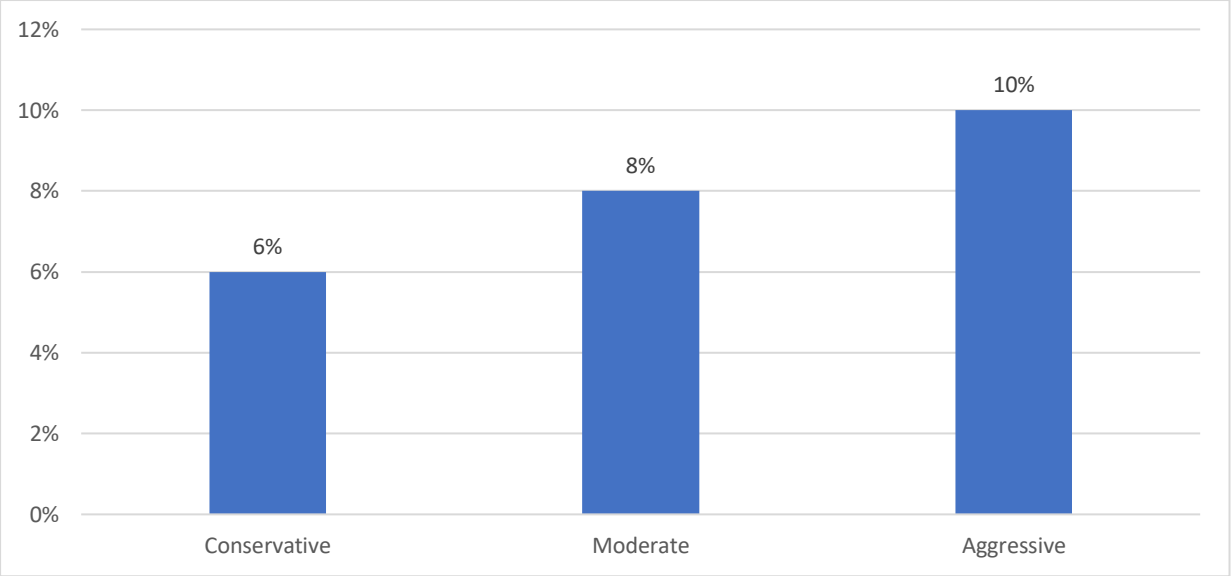


Figure 5 depicts how an investment strategy or mandate determines the return. Those with minimal risk earn a lower return than those portfolios with a higher risk preference. An aggressive investor will take on a higher risk portfolio to earn a higher return.

3.3.1 Short-term

Short-term investments are considered any period less than a year. Short-term investments have low yields or high risks, depending on where the investor invests the money (AllBusiness Editors, 2019). Short-term investments play a vital role in the portfolio formation as they allow investors to access their cash quickly if needed without being heavily penalised. They also play a role in the form of liquidity as the investments are easily accessible should the

need arise. Cash is considered the best solution; however, it does not pay interest. Listed below are a few examples of short-term investments:

- Cash,
- Savings Accounts,
- Certificate of deposit,
- Stocks,
- Treasury bills, and
- Corporate bonds.

3.3.2 Medium-term

Medium-term investments range from twelve months to five years. Medium-term investment can take the form of multiple financial instruments which may overlap into the other terms of investment. The term of the investment influences an investor's risk tolerance - and the term of the investment is often decided by what the money will be used for. Medium-term goals often seek a balance between risk and return, being more conservative than long-term investments, but more risk-tolerant than short-term options (Scott, 2019).

Listed below are a few examples of medium-term investments:

- Mutual funds,
- Corporate bonds, and
- Stocks.

3.3.3 Long-term

Investments are considered long-term when they exceed five years. Long-term investments have many advantages such as:

- The elimination of the investor's emotion,
- Compounding benefits,
- Less taxes payable, and
- Lower investment risks.

Listed below are examples of long-term investments:

- Stocks,
- Corporate bonds,
- Treasury bonds,
- Real estate, and
- Alternative investments.

3.4 Market Efficiency

Market efficiency shows how well the market reacts to certain information, and if the information has been priced into the various securities.

Therefore, the subject of market efficiency is of great interest to investment managers (CFA Institute, 2019). There are three different forms of market efficiency which is evident in various financial markets. Understanding which form of efficiency your current market is trading in is vital to take advantage of the weaknesses and plan for the future (CFA Institute, 2019). A market is considered efficient when the price reflects all available information.

A weak form of market inefficiency results in security prices reflecting all information contained in the history of the security, which implies that trend analysis is not useful. A semi-strong form of market efficiency considers all publicly available information regarding the firm's prospects, which should be already reflected in the security price. Traders cannot realise above-average risk-adjusted returns by using important current information that has already been made public. Security prices reflect all information – both private and public in a strong form of market efficiency. Thus, no group of investors has monopolistic access to information relevant to the formation of prices. The implication is that no group of investors (including insiders) can consistently derive above-average risk-adjusted returns.

Regarding active managers, understanding the efficiency of the market operation is essential as technical analysis and various strategies will only be effective in a market which has a strong form of market efficiency. Strong market efficiency is needed if news regarding a certain stock is released as the market could overreact, which could either affect the market in a positive or negative way. If the market overreacts and is not in line with the current share

price, the fund managers' strategies will be unsuccessful as the new information was not priced into the stock; the share price will either surge or decline depending on the new information.

In markets with a weak form of efficiency, traders can earn abnormal profits through arbitrage and by taking long positions on stocks which they believe are undervalued, or potentially shorting stocks that are overvalued according to the trader's intrinsic price. This kind of trading would require expertise as the trader makes assumptions to reach the intrinsic value of the share. Another issue is the market needs to release the true value of the stock before the traders or fund managers can exit the asset class and earn a high return.

Thus, there is a case for all stages of market efficiency. However, one must understand the market trade-in and utilise that for favourable returns.

Figure 6: Reaction of Stock Price to New Information in Efficient and Inefficient markets

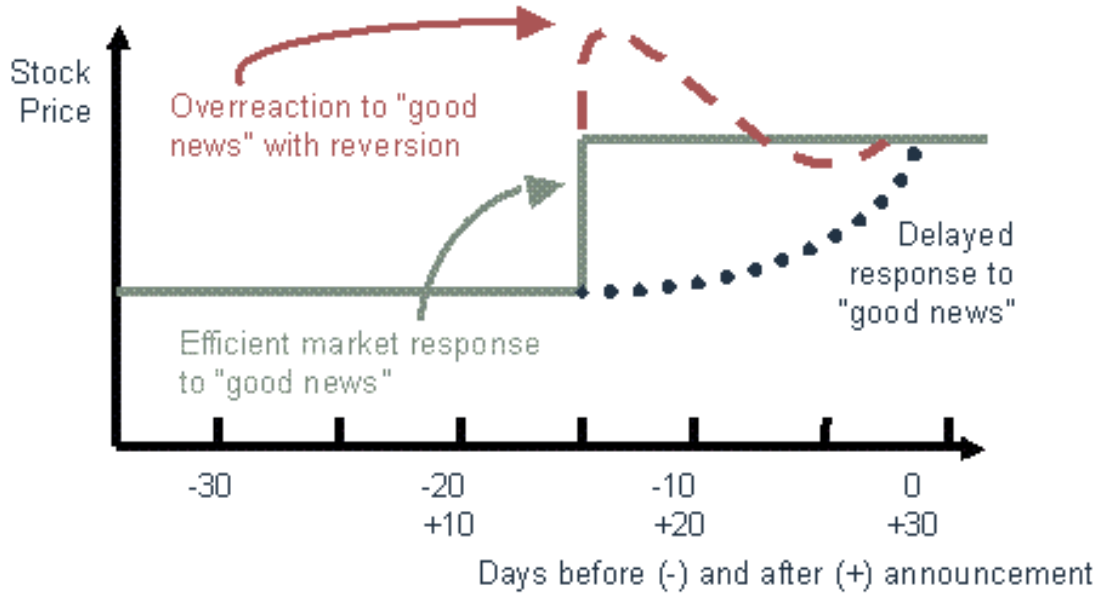


Figure 6 shows the differences in market efficiency between markets with a weak and strong form of market efficiency. Weak market efficiency is at the bottom as the information it reflects is general, and the markets are not up to date. Therefore, these indices are the easiest

to exploit, resulting in abnormal returns. Markets with a strong form of efficiency are the markets that reflect all information. Therefore, arbitrage is extremely difficult in these indices. Figure 6 also shows how the share price reacts to updated news based on the efficiency of the market.

3.5 Risk Tolerance

There are three types of risk tolerance: risk-averse, risk-neutral and risk-loving.

3.5.1 Risk-averse

A risk-averse investor would be considered an individual who is reluctant to take risks; when given two choices with a similar return, the investor is expected to go with the lower risk profile (Scott, 2019).

3.5.2 Risk-neutral

A risk-neutral investor is one who is indifferent to risk they neither prefer nor dislike risk. The risk-neutral investor places himself in the middle of the risk spectrum, represented by risk-seeking investors at one end and risk-averse investors at the other (Scott, 2019).

3.5.3 Risk-loving

A risk-lover is an investor who is willing to take on additional risk for an investment that has a low additional expected return in exchange for that risk (Halton, 2019). Excess kurtosis relates to the additional deviation given by the data, which results in increased risk (Halton, 2019). Risk-loving investors can take on more risk and benefit from the expected higher reward.

3.6 Liquidity and Diversification

Liquidity is a major factor when determining the correct investment. All investment plans must have a contingency plan for a rainy day. Therefore, diversification is vital. Diversification is the process of eliminating risk by spreading your investment across multiple sources and various equities. Diversity is used to reduce the volatility in your portfolio.

Diversification can take place in many forms which can include diversification of equities, sectors, industries or markets. A well-diversified portfolio is one which has an average of 30 different stocks. Once the portfolio has reached this milestone, unsystematic risk is eliminated.

3.7 Factors that drive active strategies

3.7.1 Technical versus Fundamental analysis

Fundamental analysis is done by analysing the financial statement of an organisation to determine the book value of the company. An analyst will try and determine the intrinsic value of the company to determine if the shares are overpriced or underpriced. Fundamental analysis relies on human error and judgement as certain assumptions will be made to determine the intrinsic share price.

Technical analysis will use a variety of tools and charts to determine the true value of the share price. Technical analysts believe there is no value in analysing a company's financials since the stock price reflects all the available information.

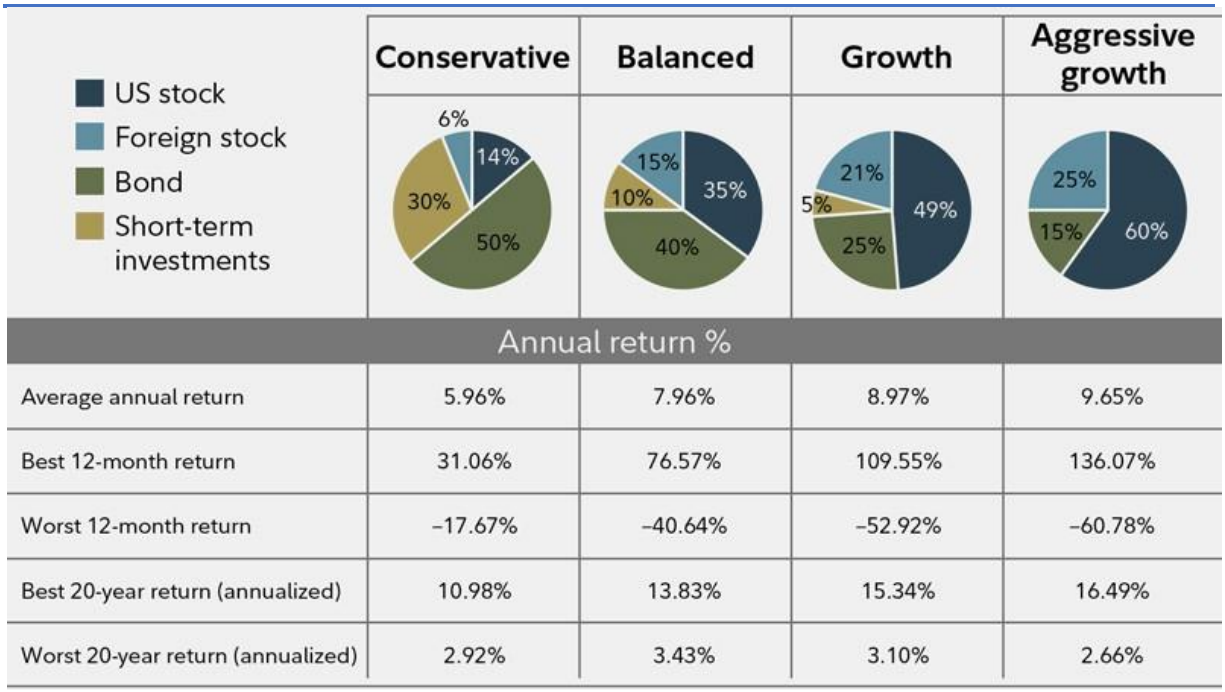
3.7.2 Bottom-down to top-up approach

A top-down approach identifies broad market trends to predict which geographic or industry sectors will prosper. Only then do they research individual companies, to find which offer the best value in their sector (Vangaurd, 2019).

A bottom-up approach starts by analysing individual companies. The approach aims to identify robust performance or potential that is not reflected in the current share price. They believe undervalued companies will eventually thrive and deliver profit for investors – regardless of their geographical market or sector (Vangaurd, 2019).

The bottom-up approach is more practical than a top-down approach as one invests in a company with strong fundamentals which will perform. The bottom-up approach is preferable due to the simplification of assessing one company's fundamental as opposed to the macro environment.

Figure 7: The Portfolio diversification according to risk tolerance



Annual return %				
Average annual return	5.96%	7.96%	8.97%	9.65%
Best 12-month return	31.06%	76.57%	109.55%	136.07%
Worst 12-month return	–17.67%	–40.64%	–52.92%	–60.78%
Best 20-year return (annualized)	10.98%	13.83%	15.34%	16.49%
Worst 20-year return (annualized)	2.92%	3.43%	3.10%	2.66%

Figure 7 depicts the several types of portfolios depending on an investor's risk appetite. It also shows the returns over a 12-month period to a 20-year period. It is worth noting that the bulk of a conservative portfolio is invested in bonds. The majority of an aggressive portfolio is invested in equities.

3.8 Market sentiment and algorithmic trading

Market sentiment is the general attitude towards the financial market. The stock market has been considered an emotional market for years, and supply and demand influence the trading of shares. When individuals believe there is profit to be made on a share, equities are purchased, and the share price increases.

Algorithmic trading is the trading of equities using pre-programmed trading instructions. Key indicators which will often be used are volume, price and volatility. The programmed algorithm will allow the investor to automatically act on various instructions, as the software will purchase or sell various shares when the investor's pre-programmed trigger is initiated.

This is a new innovation and the future of the hedge fund industry. Currently, there are only two funds in South Africa trading through the combination of the two. There are various funds in the United States that are trading through these algorithms. These trading tools allow the programmes to make instantaneous trades and eliminates human error once the correct programmes have been set up.

3.9 Developing the ultimate strategy for investing

To develop a strategy or fund, a team of managers is imperative. Each manager should ideally come from a different background. However, the team of managers should have experience in the market. With regards to the top-down and bottom-up approach, each strategy will work if formulated correctly. The same applies to the technical and fundamental analysis. There is no right or wrong stance as been have proven to be effective in the past.

3.10 Summary

This chapter provided the user with a deeper insight and understanding of active and passive funds. The chapter also highlighted the key differences between active and passive funds and how different investors have a preference for various funds and portfolios depending on their risk appetite and financial constraints. Another key feature of this chapter is the market efficiency of markets and how fund managers must adapt their trading strategies according to the efficiency of the market in which they operate.

Chapter 4 Research methodology

The key component of this paper is the research methodology, displaying the methods used to reach conclusions. The starting point in the research methodology was to extract all the financial data onto an excel spreadsheet and analyse the data accordingly to the various subcategories determined.

To achieve research aims and to answer the research questions, a clear understanding of the asset management world requires supporting theory to understand the practical implications. This thesis will examine the available literature to produce a simple understanding of the financial phrases and jargon, and a broad overview of how the various funds and indices have performed in a local and global context.

4.1 Data Sources

The data used in this study consists of equity data. The data used consists of fund returns on a month-to-month basis to create a holistic understanding of the various equities' performance. The active funds used are all South African funds as the purpose of the paper aims to investigate the study in a South African context. The various foreign indexes are also included to understand the role currency plays when determining market returns on a rand basis.

4.2 Sector analysis

A distinguishing characteristic of this paper is the industry sector where the equities sit. Firstly, there are different exchanges where the shares are traded, such as the JSE and NYSE. The second key consideration is the type of industry or sector the stocks fall into. The sector analysis was vital to determine what was influencing the share price and the reason for the driving factor behind the price.

4.3 Sample data

The monthly returns from May 2014 to April 2019, a period of five years, with 60 monthly observations are examined. The use of five years of data should allow the creation of robust

statistical results, providing an improved indication of the performance of the various equities and indices. Seven companies used in this study are specified below:

- JSE all share index,
- JSE top 40,
- JSE Industrials,
- JSE Resources,
- JSE Financial,
- S&P 500, and
- Nasdaq.

The key reasoning behind these indices was to gain a clearer understanding of the South African market and secondly, to see how these compare to foreign indices.

After outlining the various indices, foreign exchange was a vital component to this study. Three major currencies in the world are selected, which are the dollar, the euro and the pound. Foreign exchange plays a vital role due to investment in foreign equities via South African funds and due to dual-listings of various stocks.

For simplification purposes, gold is used in this paper due to being the most common resource. Gold has been a traditional investment for years, and as a result of mediocre performance in equities, people often turn to gold as a safe investment strategy.

Five passive funds are selected, being well respected funds in their industry as well as funds with explicit information on there products and past returns , namely:

- Fairtree equity market neutral fund,
- Peregrine capital pure hedge,
- 36One SS QI,
- Sygnia, and
- Laurium.

The above institutions manage millions of rands daily and support this study.

4.4 Measuring fund performance

Once the various data is extracted, a detailed analysis was required of the various equities and indices. The starting point was to get the average increase or decrease in the respected equities and indices per month to gauge what the norm would be. The maximum and minimum drawdown are examined, in the share prices per month to determine the volatility of the market and indices and the sectors which display the highest risk.

Standard deviation is a measure of the dispersion in the data and is a good indication of risk. The higher the deviation, the more uncertainty there is regarding equity, indices or funds.

The geometric mean return of the data is examined for a clearer view of the correct mean as the data is not distorted. Correlation is a key metric for one to understand the relationship or dependence between two random variables. In this paper, two random variances selected are the active fund index and passive fund index. The results display that there is a positive relationship.

Covariance is a calculation used to determine the relationship between the returns on two asset classes. The relationship can be positive or negative. When the covariance of two assets is positive, they tend to move in the same direction. However, when the covariance exhibits a negative trend, they move in the opposite direction.

Management and incentive fees are the key differentiator between active and passive funds. All active funds have different fee structures according to how they are set up and to ensure that they have a competitive advantage over their competitors. The general rule of thumb is a two and twenty fee (schweser, 2016) structure which implies a management fee of 2% and an incentive fee of 20%. The high active fees diminish the investors' returns and justify why investors opt for passive investments.

Brokerage fees are the fees charged by the platform or broker with whom the trade is solicited through. Brokerage fees vary depending on which institution the trade is made with and these fees can be adjusted or customised according to the value of the transaction. For the purpose

of the analysis, the brokerage fees are excluded as it is insignificant in terms of the analysis and is dependent on the trading platform.

4.4.1 Strate

Strate is a fee which is levied on all equities purchased in a South African market. The fee varies depending on the value of the equities being purchased. The fee is 0,005787% excluding vat. However, there is a minimum and maximum fee on all transactions. Thus, the Strate fee has is limted. For simplification purposes, the Strate fee has also been omitted from the data as both passive and active funds would be obliged to pay this fee.

4.4.2 Securities Transfer Tax (STT)

Security transfer tax is a tax levied of **0.25%** to all share purchases. For the purposes of this paper and as a result of this tax applying to both active and passive funds, the 0.25% can be ignored.

4.4.3 Fund index

Part of the research methodology involved creating a fund index for the active funds and passive indices. The main reason for the creation of an index for the two was to simplify the results for the reader to ensure a broad overview of the funds' performance.

4.5 Formulae

The Sharpe ratio is used to determine the return of the asset based on the risk. A Sharpe ratio allows one to compare assets of multiple classes, with different risk components to one another.

Beta is a measure of the volatility and systematic risk of a security, or a portfolio in comparison to the market as a whole. In the analysis, JSE All Share Index represents the market and the portfolio includes the various indexes selected.

The capital asset pricing model (CAPM) is used to determine the return investors require to commit their capital in a given investment, given the various risks and market conditions. CAPM is calculated using a beta which represents the market risk of the particular security

and not the standard deviation, which would represent the risk of the whole market. Investors should only be rewarded for systematic risk, which is inherent in the stock. The reason investors should only be rewarded for systematic risk is due to the fact that the risk can be eliminated through diversification of the portfolio.

Alpha is a performance measure used to determine the performance of one fund compared to another fund.

R-squared (R^2) is a statistical measure that represents the proportion of the variance for a dependent variable that is explained by an independent variable or variables in a regression model.

A regression analysis is used to understand the relationship between the dependant variable and the independent variable. In this scenario, a regression analysis will be used to determine the relationship between the active index and the passive index created.

4.6 Summary

After reviewing the various strategies, one is aware of the complexity of the equity market. Each investor places a different weight and priority on certain factors and strategies. Additionally, there is no one correct way to select securities, but multiple ways and multiple combinations are needed to ensure correct equity selection. The research methodology methods selected are prevalent and are the most vital for this paper.

Chapter 5 Research results

To determine what drives the equity market, five-year returns of various industries, sectors, funds and markets are investigated. The main focus related to the South African equity market remains. However, some major international indices and the effect of foreign exchanges are incorporated.

Figure 8: Return before Fees

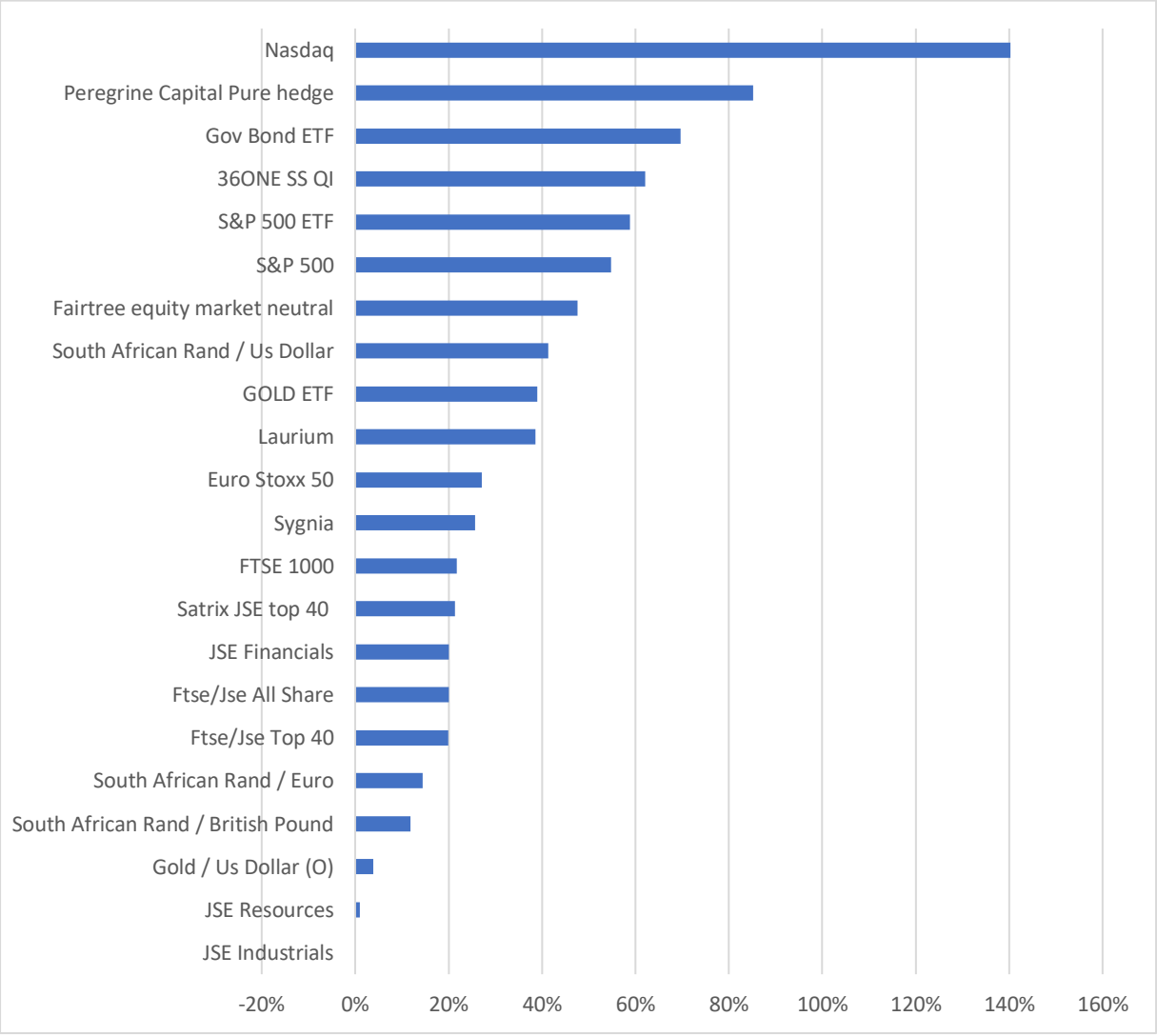


Figure 8 shows the total results of the portfolio before disregarding fees. Most sectors have returned a positive return except for the resources and industrial sector. The main reason for the negative return in resources could be due to poor performing commodity prices.

Regarding the industrial returns, the cyclical cycle which the sector falls into and various trade agreements which affect macroeconomic policies influence the sector's performance.

Figure 9: The return after fees

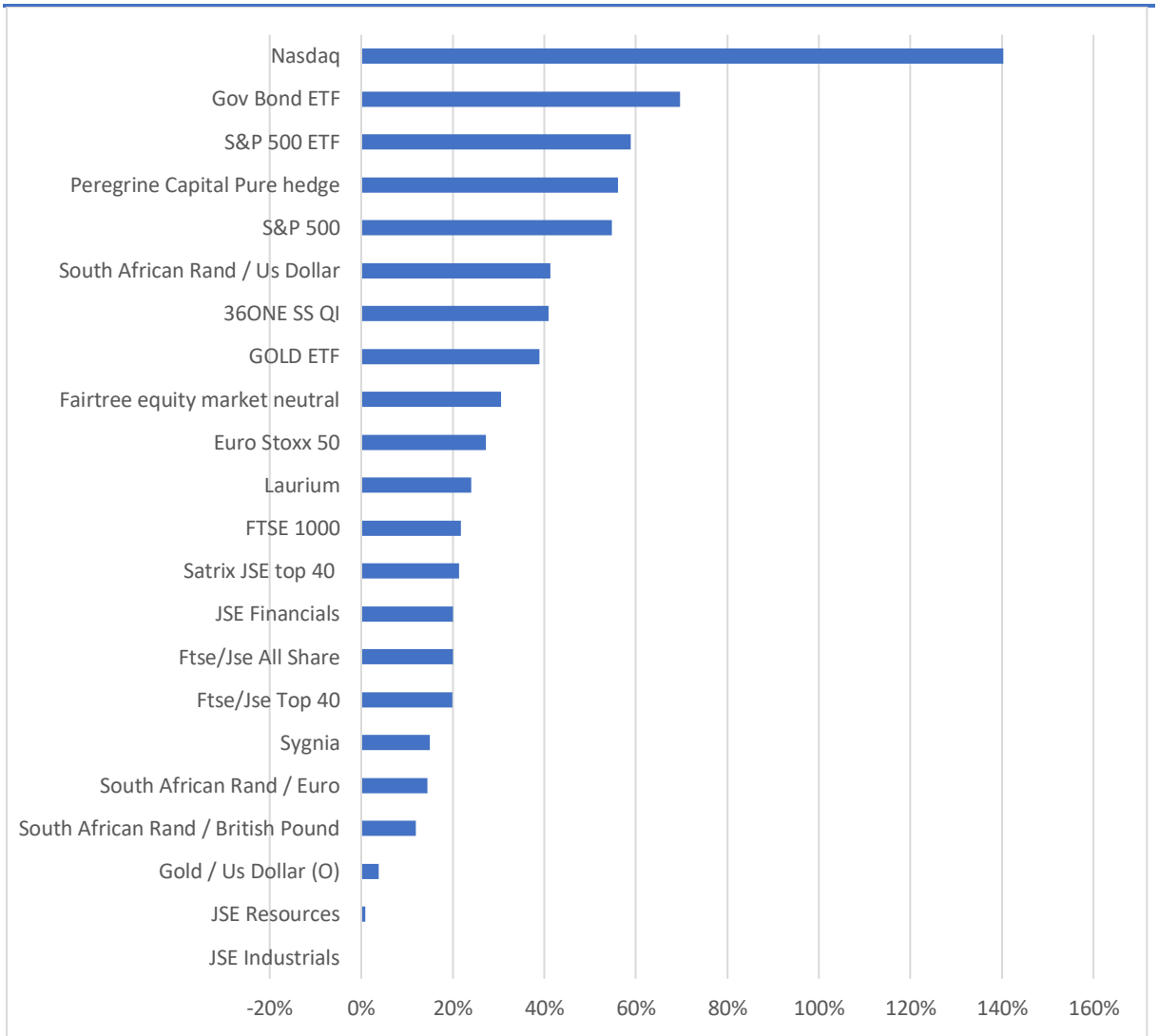


Figure 9 shows the various returns of the portfolio after the fees noted above diminish the investor's ultimate return. Active funds charge the highest fees. Therefore, investors of these funds are disadvantaged. Thus, the question remains as to whether these fund managers can earn superior returns to justify their high fees.

Figure 10: Comparison of Returns

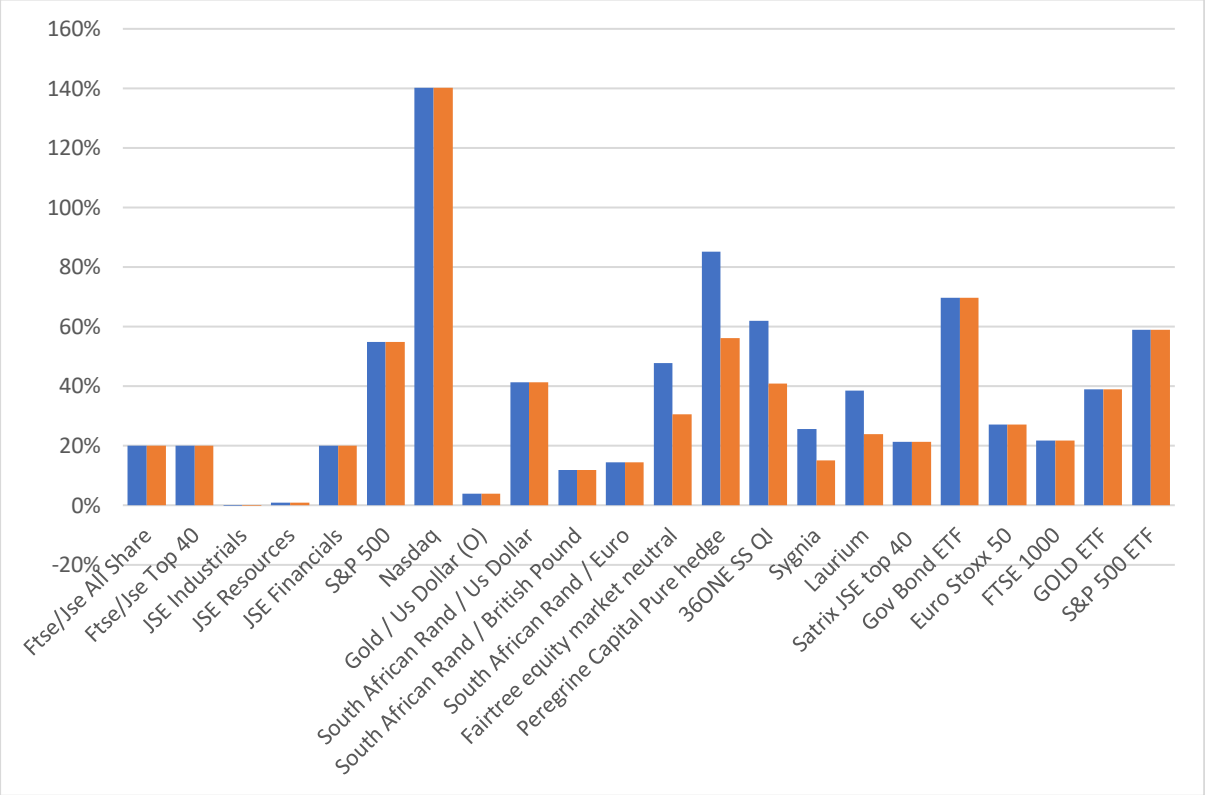
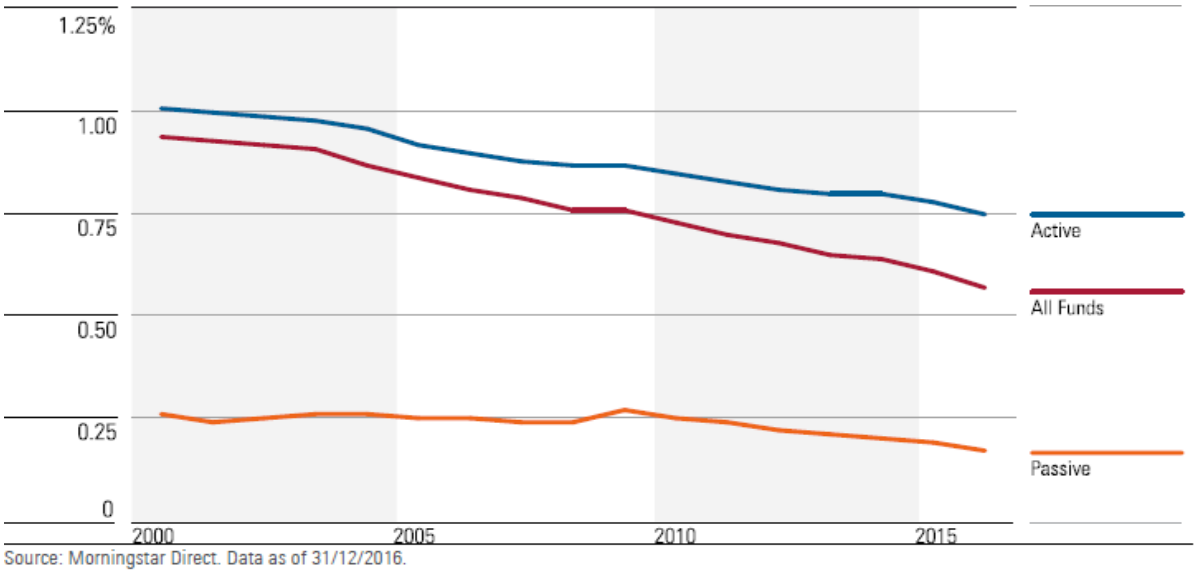


Figure 10 shows a direct comparison of the returns before and after fees. With the various active funds such as Fairtree, Peregrine, 36One, Sygnia and Laurium, the returns the investors received net of fees are significantly lower and this will diminish the investors return.

Figure 11: Asset-Weighted Average Fund Fees Continue to Decline



Source: Morningstar Direct. Data as of 31/12/2016.

Figure 11 displays that as the popularity of passive funds increase, active fund managers are forced to lower their fees to stay competitive and attract consumers.

5.1 JSE categories

SA Sector categorises all listed instruments into one of three sectors, namely Resources, Financials and Industrials, based on their revenue. The SA sector classification is derived from the Industry Classification Benchmark (ICB) as follows:

- SA Resources – JSE listed companies that belong to ICB Industries Oil & Gas (0001) and Basic Materials (1000),
- SA Financials – JSE listed companies that belong to ICB Industry Financials (8000), and
- SA Industrials – All remaining companies, i.e.: JSE listed companies that do not belong to ICB Industries Financials (8000), Oil & Gas (0001) and Basic Materials (1000).

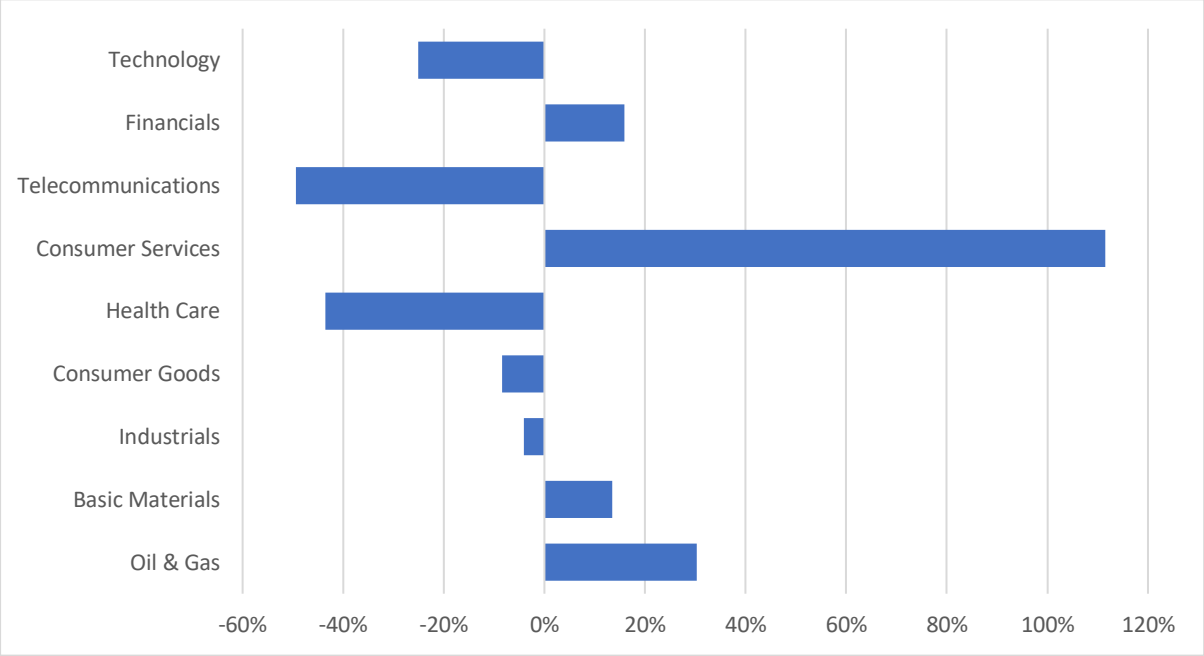
SA Sector indices split the All Share Index constituents according to their SA Sector classification (Johannesburg Stock Exchange, 2019)

5.2 Market returns

Our starting point in degerming what drives the equity market is to look at the nine underlying sectors in the JSE. The nine sectors with their five-year return are:

- Oil and gas 30.29%
- Basic materials 13.43%
- Industrials -4.02%
- Consumer goods -8.38%
- Health care -43.49%
- Consumer services 111.51%
- Telecommunications -49.36%
- Financials 15.97%
- Technology -25.13%

Figure 12: JSE sector returns



The returns of all nine sectors on the JSE are shown in Figure 12. The strength of the JSE due to various sectors such as Consumer Services, Financials, Oil & Gas, Basic Materials and Industrials.

Each sector is displayed in the appendix with a breakdown of the various subcategories involved. The data above suggests that certain sectors have not been beneficial for the industry as a whole. However, some industries such as Financials, Oil & Gas, Basic Materials and Consumer Services have excelled.

5.2.1 Active portfolio returns

With regards to the active portfolios, five top-performing hedge funds based in South Africa are identified. The hedge funds are listed below with their returns before and after fees:

Table 1: The effect of fees

Name	Before fees	After fees	Fee %
Fairtree	47.67%	30.61%	17%
Peregrine	85.21%	56.09%	29%
36One	62.05%	40.97%	21%
Sygnia	25.67%	15.03%	11%
Laurium	38.56%	23.98%	15%

All of the above funds returned a positive return which ranged from 15% to 56% after considering the fee structures. It is clear that certain funds have a winning formula despite negative market conditions and certain funds can exceed the market. It is also evident that Peregrine is the fund of choice based on its returns which is 24% higher than its next competitor. It is also worth noting that the funds charging the higher fees seem to outperform its competitor funds before and after fees are considered.

5.2.2 JSE Top 40 index returns

The JSE Top 40 index is a list of the 40 largest organisations trading on the Johannesburg stock exchange. The returns on the JSE has been consistent in the last few years due to the constituent companies being duel listed. Based on research, the JSE has achieved a 20% return over five years.

Figure 13: JSE Top 40 price

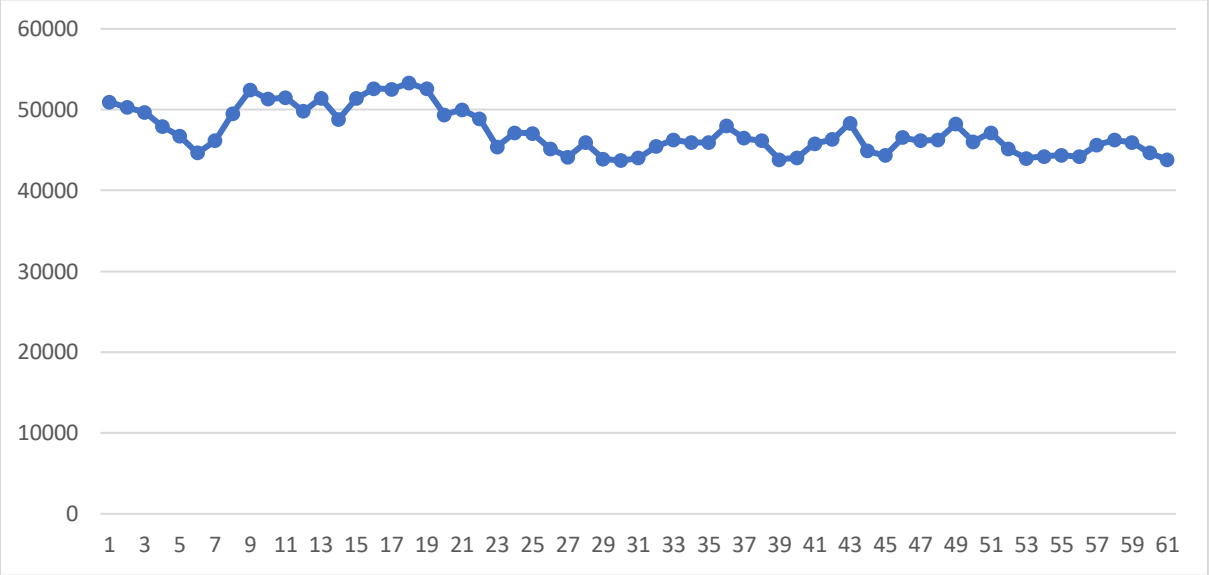


Figure 13 shows the return of the JSE Top 40. The Figure indicates a stable yet negative return over the last five years. The reason the returns are negative is due to the impact Steinhoff had on the index due to its large volume and weight it held.

Figure 14: Stocks that drive the JSE Top 40

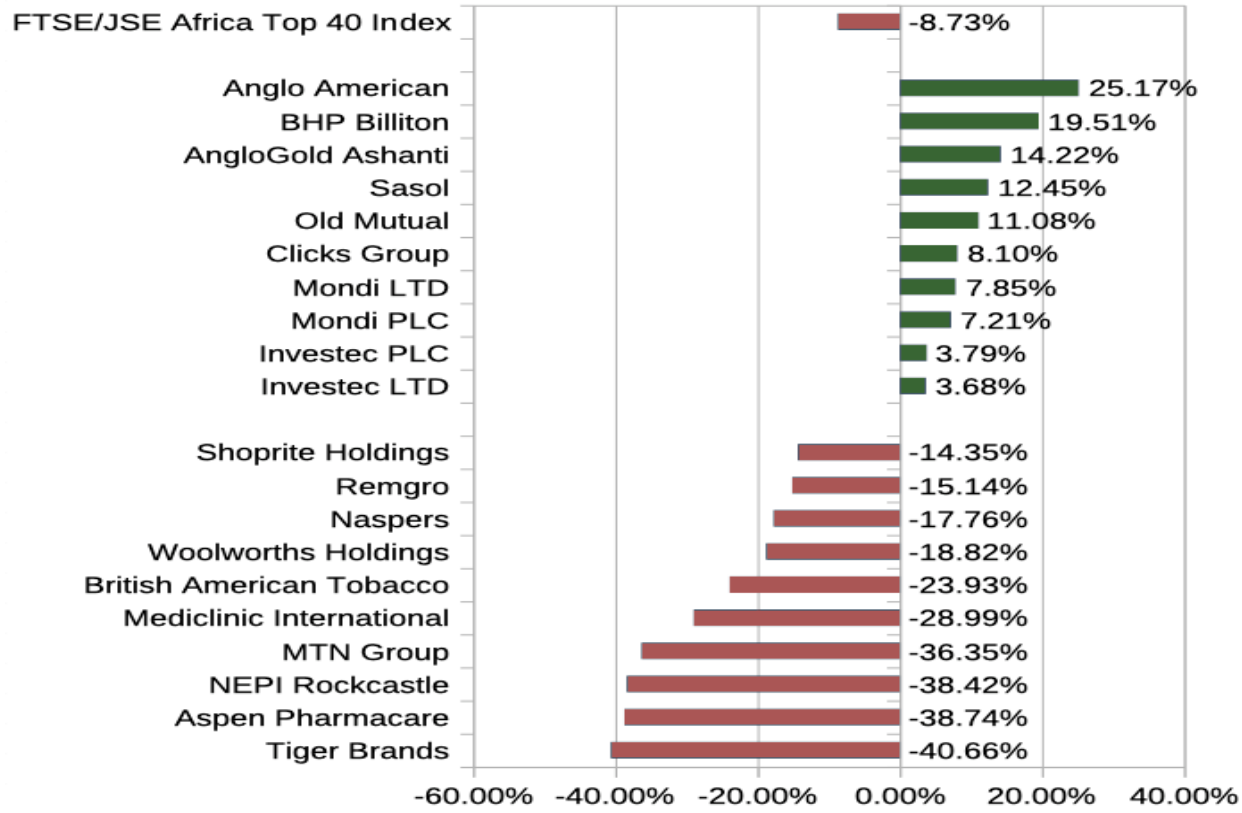


Figure 14 provides a further breakdown of what Constitutes the JSE Top 40. The index returned negative 8.73% over the five-year period. The majority of these companies have been in the index for years. The Top 40 does not change on a day-to-day basis. Although some of these stocks are considered blue chip shares, it does not guarantee a favourable return.

5.2.3 S&P 500 Returns

The S&P 500 is an American stock market index based on the market capitalisations of 500 large companies having common stock listed on the NYSE (Anon., 2019).

Figure 15: S&P 500 Price index

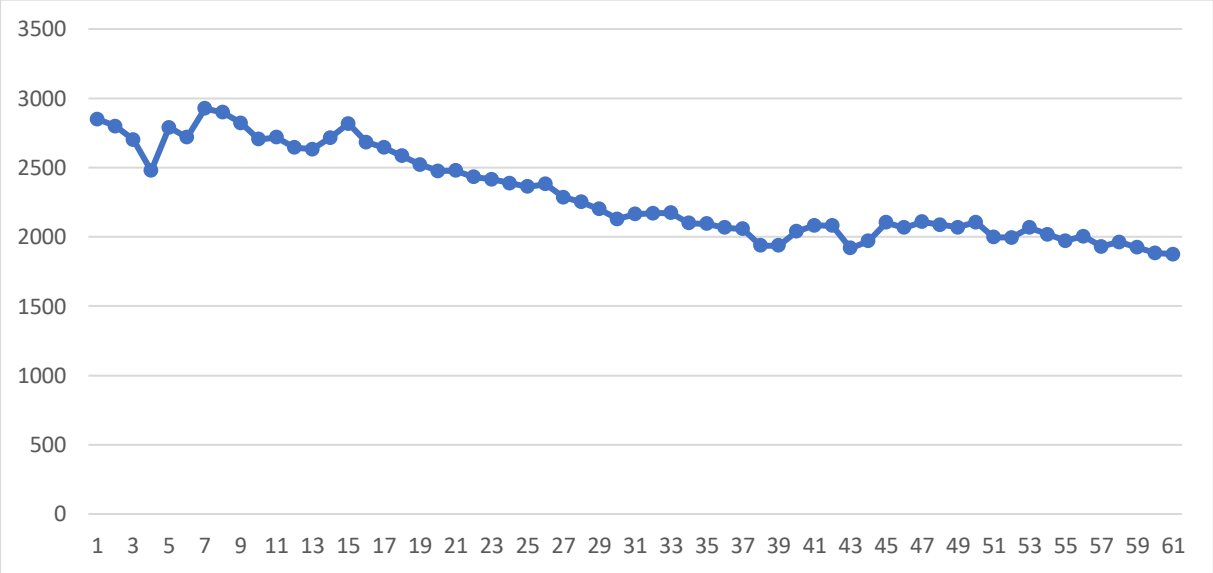


Figure 15 shows the S&P 500 returns. The share price is improving period 61 exhibits the first period data where point 1 exhibit the current point on the S&P 500. The S&P 500 continues to grow due to strong economic growth.

5.3 Nasdaq

The Nasdaq Stock Market is an American stock exchange. It is the second-largest stock exchange in the world by market capitalisation, behind the New York Stock Exchange located in the same city (Anon., 2019).

Figure 16: Nasdaq Prices

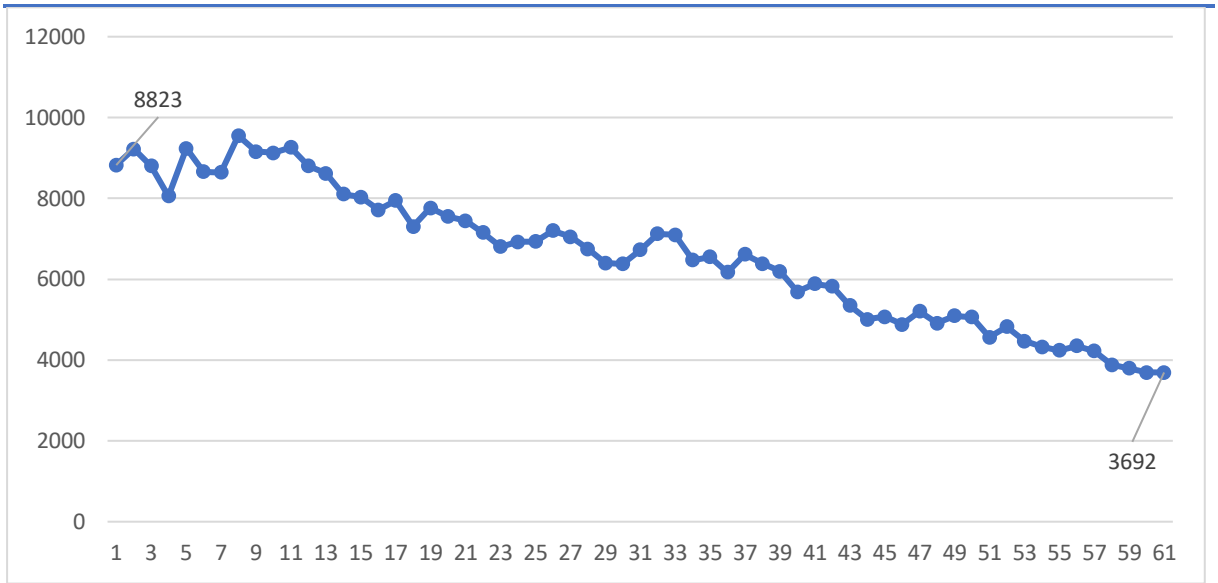
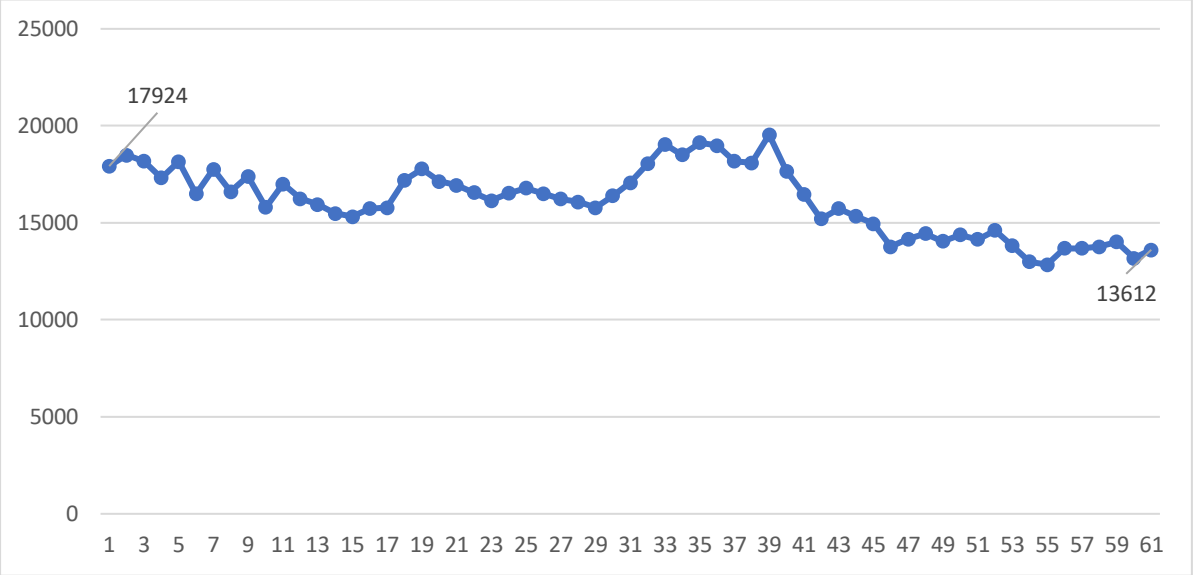


Figure 16 examines the correlation between the strength of the US economy and the share price. As the American economy has strengthened, so has the stock market. The price of the Nasdaq went from 3692 to 8823 in five years, displaying substantial growth in the economy which is driving share prices.

5.4 Gold

Gold is a vital component of any portfolio as it provides risk against inflation and currency devaluation. Gold is also considered a source of capital preservation. The image below depicts the correlation of gold versus other asset classes:

Figure 17: The gold price (Gold ETF)



Gold is a commodity and a natural resource. Due to there being a limited supply of this commodity, the resource should deplete, which will increase the commodity's price due to the supply decreasing and demand increasing.

After-inflation returns for South African assets

Table 2: The return for South African assets after inflation

Number of years	Total gross return JSE	SA bonds real yield	91-day money market yield	Total gross house return	Gold in rand
Last 50 years	3.94	2.08	0.75	1.05	4.61
Last 25 years	4.80	3.93	2.72	3.49	4.76
Last 15 years	6.03	2.49	1.05	1.43	7.42
Last 12 years	-0.04	2.44	0.63	-1.84	3.88
Last 10 years	4.31	3.17	0.85	-0.15	1.60
Last 5 years	-3.41	3.88	1.51	-0.15	1.88
Last 3 years	-2.14	4.30	1.83	-0.79	-4.62
Last 1 year	-4.07	4.63	2.00	-0.77	-6.47

Based on the above data, gold has outperformed all other asset classes in the long-term. In many instances, portfolio managers ignore gold which is a stable and safe performer over time.

Gold in dollar terms increased from USD35.45 in 1969 to USD1 282.4 per ounce in 2018. The increase represents a 7.6% compounded nominal dollar return. However, once translated into rands, the nominal annual returns increase to 14.2% compounded for 50 years (Schüssler, 2019).

5.5 Index tracker

Index funds seek to replicate the holdings and performance of a designated index. Index funds are designed to offer investors exposure to an entire index at a low cost. Index funds typically buy the individual securities in the index they seek to replicate (Chen, 2019). Six index funds were used to assess the performance as a whole and how their returns compare to the various passive funds. The six index trackers selected with their returns are:

1) Satrix JSE top 40 21.35%
2) Government bond ETF 69.61%
3) Euro Stoxx 50 27.17%
4) FTSE 1000 21.83%
5) Gold ETF 38.96%
6) S&P 500 ETF 58.85%

The findings show that the JSE top 40 and the FTSE 1000 underperformed relative to the peer trackers. The JSE's underperformance is due to exchange rate volatility.

5.6 Exchange rate and how the returns are inflated

The exchange rate plays a vital role in returns for companies, especially when a company is considered a multinational. The fluctuations in exchange rates of the three major currencies against the rand are evaluated to determine the effect it has. The below three exchange rates were chosen, and their returns over five years have been displayed:

Table 1: Appreciation of currencies

Currency	Appreciation %	Start Value	End value
South African Rand - American Dollar	41.4%	R10.52	R14.21
South African Rand – British Pound	11.9%	R17.75	R18.65
South African Rand – Euro	14.47%	R14.59	R15.91

Table 1 depicts the effect of currency appreciation. Investors would automatically be at an advantage had they invested in a foreign market. This added advantage would range from 11.9% up to 41.4%. Therefore, it is necessary to isolate the market as a whole and assess the returns of a market before considering currency appreciation, to gain a better understanding of the market for a comparison of market returns.

Figure 18: Rand Dollar Price

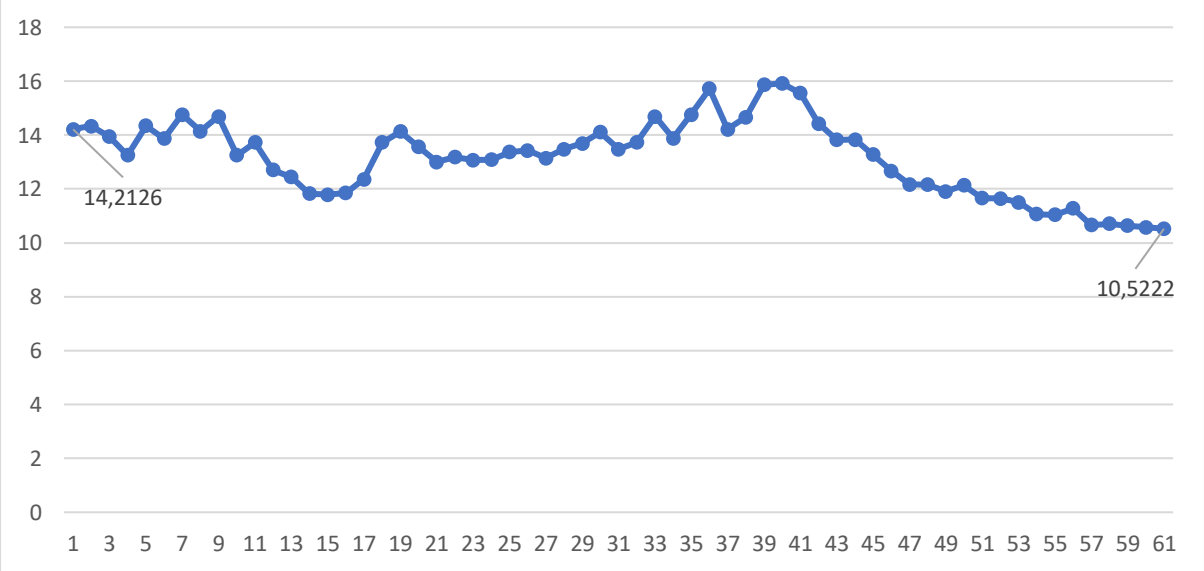


Figure 18 exhibits the rand-dollar exchange rate with period one being the current period and period 61 being five years ago. The rand used to trade at R10.51 to the dollar and is now trading at R14.21, which is an increase of 35.2%. When evaluating the returns of a portfolio,

one must ensure that there is no deception in viewing the great returns due to the depreciation of the rand but rather see the actual return.

Figure 19: Rand Pound Price

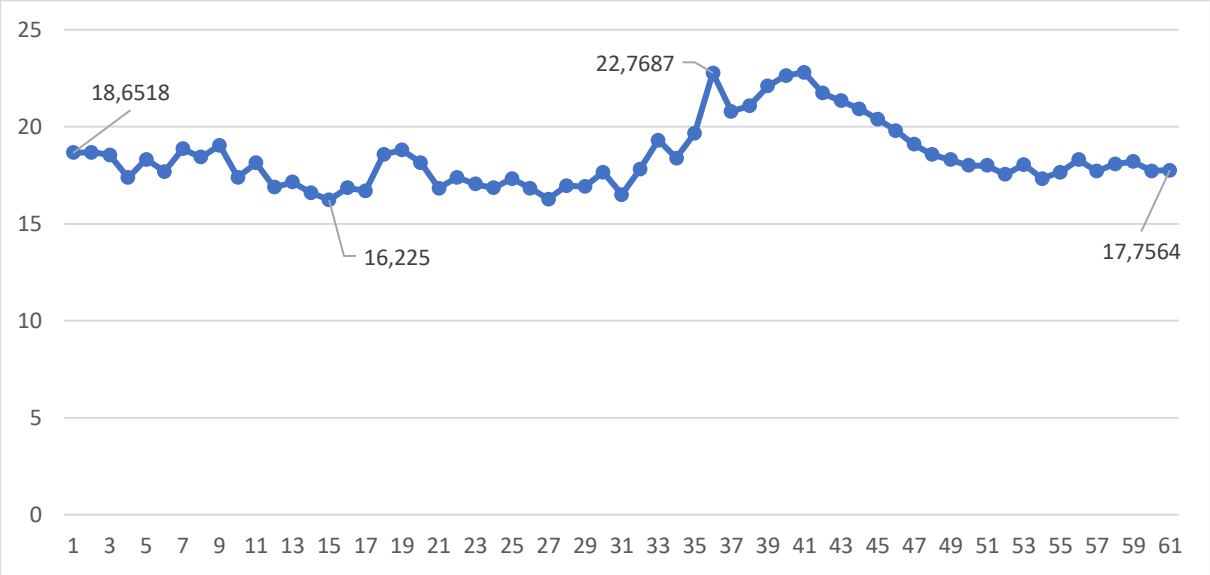
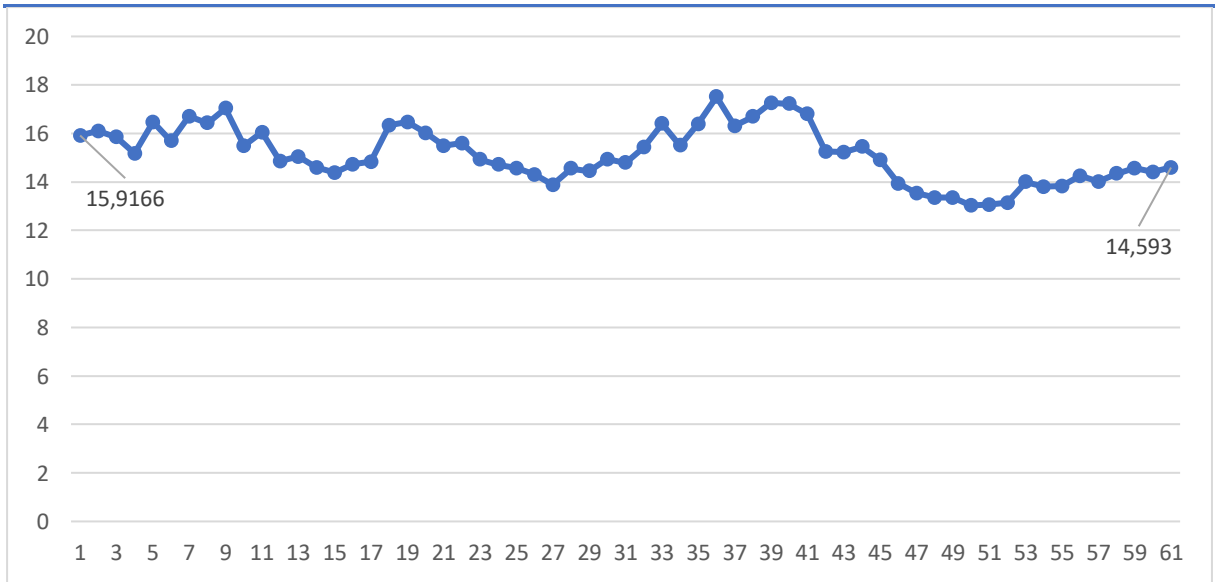


Figure 19 displays the rand-pound discrepancy with a total change over the five-year period of around 5%. This is not a major differential, but based on the highs and lows of currency as exhibited above, there is risk involved when investing in foreign assets. Out of the three currencies, the rand to the pound is the most stable and displays the least volatility.

Figure 20: Rand Euro Price



A 9% deviation in the rand-euro exchange rate over a five-year period is evident. The effect of the exchange rate between the rand and the dollar influence American stock returns. Therefore, the American stocks display an extra 35% margin greater than it should be.

Figure 21: The rise… and rise of passive investing

Figure 20 is a simple illustration which shows how the flow of funds is increasing over the years into passive investments. People may not agree with the debate of investing in passive funds. However, based on the number of funds being invested, it is a sector which cannot be ignored.

Figure 22: Standard Deviation

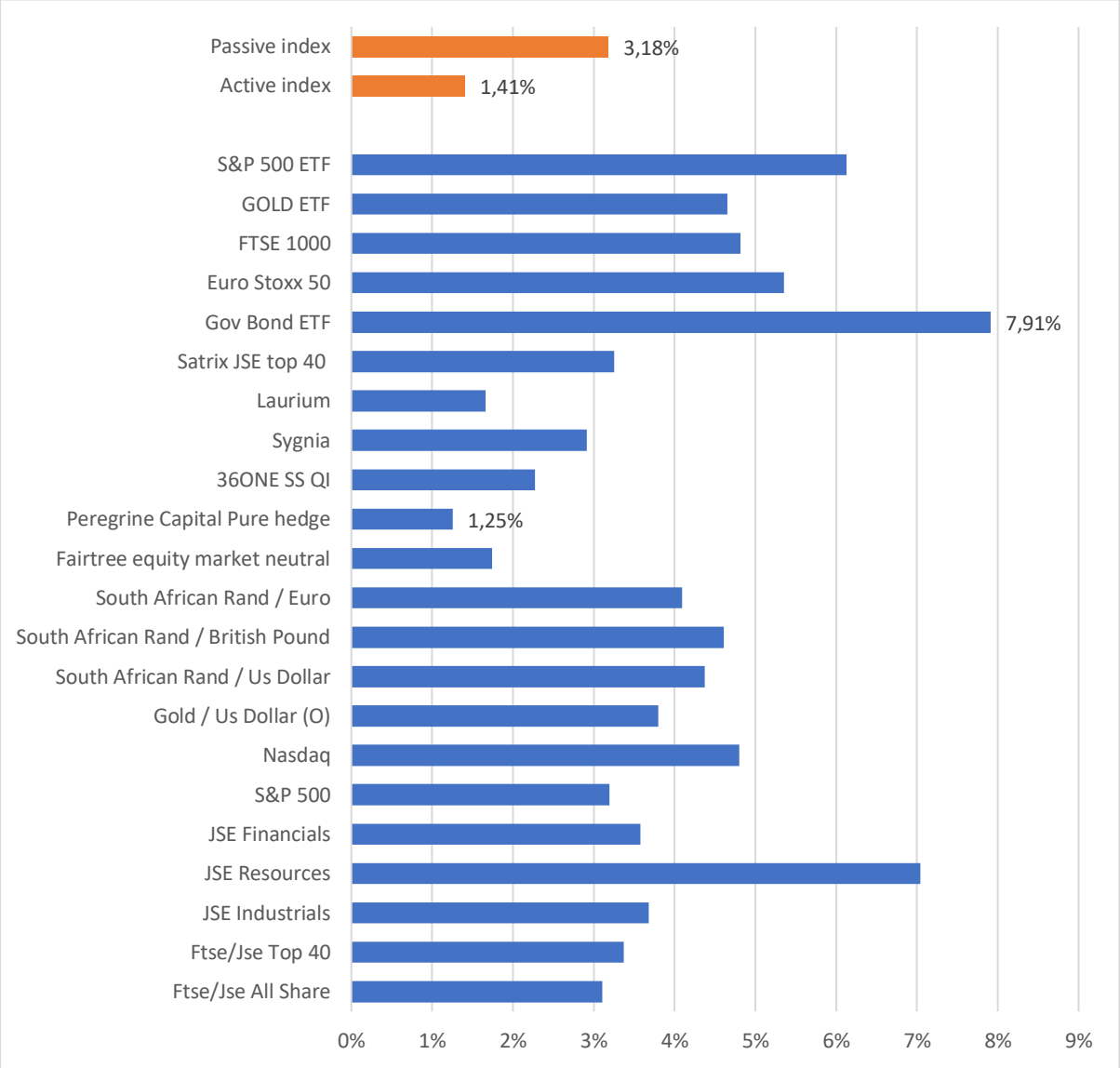
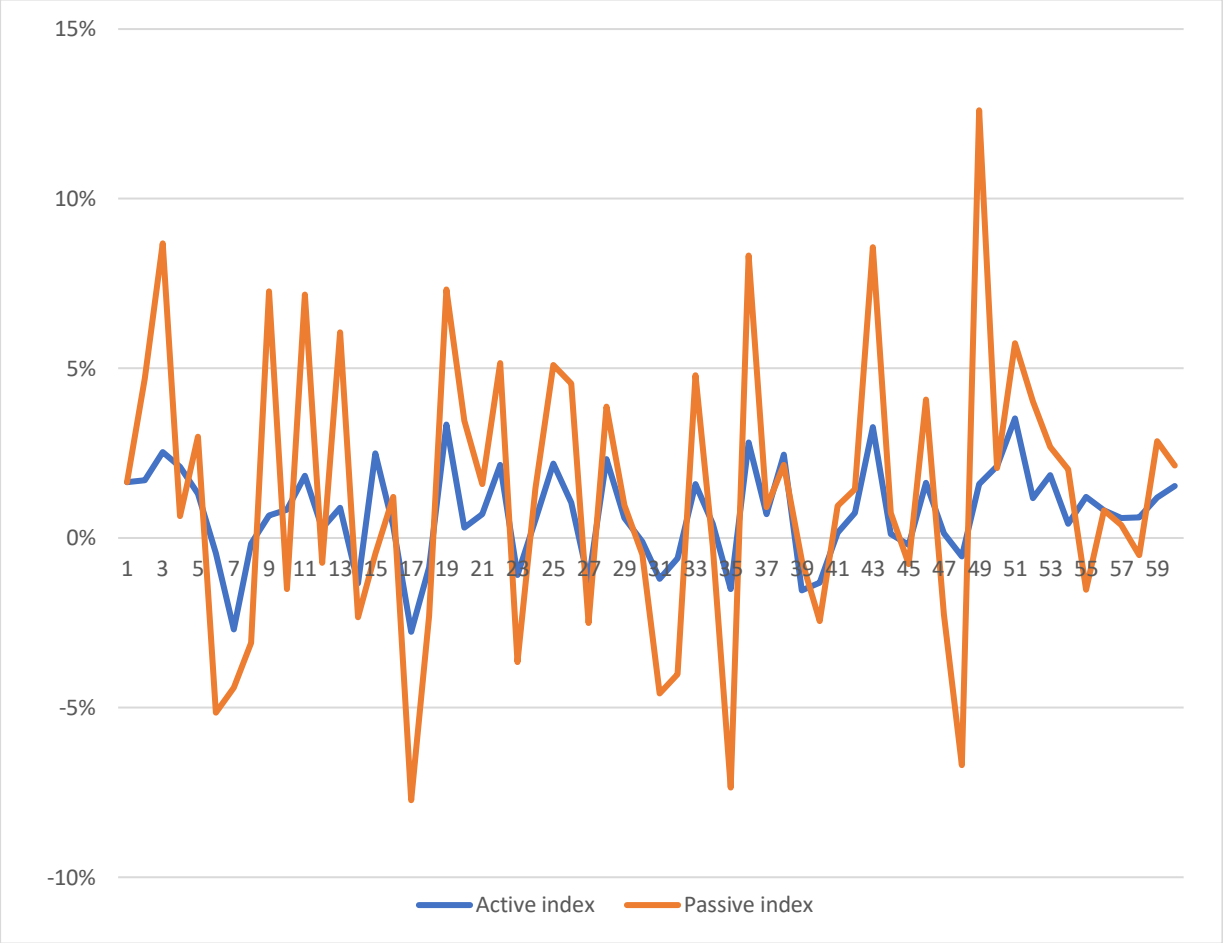


Figure 22 shows the standard deviation of the data sources. The active index displays less deviation than a passive index. Additionally, Peregrine has the best mitigation tolls as Peregrine has the lowest deviation out of all the data sources. Government bonds which are considered to be risk-free exhibit the highest deviation and show the most volatility.

Figure 23: Active vs Passive Returns



The relationship between the active fund index and the passive fund index is displayed in Figure 23. There is a positive correlation in the market with the funds moving in the same direction per period. The returns on the active funds seem to be maximised due to the ability of fund managers to various short stocks.

5.7 Summary

After reviewing all the various aspects which contribute to the return on the stock exchange, it is impossible to isolate whether active or passive funds provide a superior return. Additionally, certain funds and indexes outperform their peers. The challenge in achieving abnormal returns that beat the market is in the selection of the various active funds or passive funds.

Chapter 6: Conclusions and Recommendations

To understand the paper, the reader has been informed about the world of investing and has been provided with the necessary financial jargon. The insight and context provided were crucial for the reader to understand how active investing could benefit inexperienced investors in future. Chapter 1 introduced the context, limitations and benefits of the paper, giving the reader an overview as to why the topic was selected. Chapter 2 presented past findings, comments and debates on the controversial and sensitive topic which were discussed in the literature review. Chapter 3 provided an explanation of the financial jargon and key inputs that are utilised to make the correct investment choices. Chapter 4 considered the various research methodologies used in this study and the key components and driving factors of active and passive funds. Chapter 5 analyses the past performance of the various markets and indices, extracted from the research, to find a solution and to get a definitive answer to the key question which was posed at the beginning of this paper. Lastly, in the concluding chapter, the results are presented, which allows the user to make an informed decision, based research and understanding of the topic.

6.1 Findings

The data used in the research could be skewed due to the sample size and the bias involved when selecting certain funds. Additionally, based on the selection of active funds, one can skew the data to form an opinion, either in favour or not in favour of the various funds. Significantly, there is a discrepancy between the various funds' returns and fees. Therefore, one should rather assess the fund in isolation rather than the classification of the fund. This paper comprised a medium sample size and compared the data over 60 periods, as the last five years of data is crucial. Finally, after reviewing the findings in this paper, it is evident that various active funds outperform passive funds. Therefore, investors can justify participating in the active space. I was also able to determine that Peregrine's fund outperformed its peers and the market substantially. Peregrine is my fund manager of choice. I believe there is space in an investor's portfolio to have both actively managed funds and passive funds. However, I believe active management can be more beneficial than passive funds despite the higher fees.

6.2 Recommendations

Based on the research above, it is evident that active funds are more favourable compared to passive funds. This as a result of market uncertainty. Although some sectors outperform the active space, these sectors are not constant performers, and they may experience declines in the future or next cycle. However, in the active space, fund managers are aware of the various cycles and performance of the broader macro environment. Fund managers can manipulate and customise a portfolio as they see fit to earn positive returns.

Another benefit of active funds is they are customised according to clients' needs and risk tolerances where a passive fund's main objective is to earn a positive return.

A factor of portfolio performance is the shorting of various asset classes and the benefit of multi-asset classes and diversification. Active managers can leverage these factors and benefit the customer.

Certain fund managers outperform their peers. A key factor to consider when selecting an active fund would be their track record. The record can be assessed with a breakdown of the active fund's last ten years of performance on a month-to-month basis. The breakdown will display the fund's worst-performing months. Identifying the fund's maximum drawdown determines the volatility of the fund and how exposed the fund is to various risks. Another key factor when selecting the fund is what was their performance was in 2008 when the markets crashed and how well covered they were in terms of their performance. Based on the above statements, Peregrine is the ultimate fund manager as they display the most attractive returns while still having displayed low volatility. Their fund managers are seasoned professionals with years of experience.

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