Gordon Institute of Business Science
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ETFs on the Johannesburg Stock Exchange: A comparative analysis of returns with Actively Managed Funds

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Abstract

The study comprehensively analysed select investment instruments in the South African financial landscape, including passive ETFs and actively managed Unit Trust Sector returns. The research was primarily focused on the performance comparison between passive and active funds. The study integrated risk-adjusted performance, performance during market shocks, performance after incorporating management fees, and sector-specific performance. The research findings shed light on the relative merits of these investment options and their implications for investors.

Key Words

ETF Performance, Actively Managed Funds, Johannesburg Stock Exchange (JSE), Investment Strategies, Emerging Markets.

Plagiarism Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Acronyms

ETFs - Exchange-Traded Funds
JSE - Johannesburg Stock Exchange
RQ - Research Question
TRI - Total Return Index
UT TRI - Unit Trust TRI

1 CHAPTER ONE

1.1 Introduction

The world of finance has been in perpetual evolution, adapting to incorporate innovative investment vehicles tailored to the diverse needs of its stakeholders. One such notable vehicle is the Exchange-Traded Fund (ETF). Born out of a demand for diversification, transparency, and cost-efficiency, ETFs have taken a central role in the portfolios of both institutional and individual investors globally (Elton et al., 2005; Lettau & Madhavan, 2018). The Johannesburg Stock Exchange (JSE), as one of Africa's premier securities exchanges, exemplifies this global trend, offering a rich array of ETFs and thus presenting investors with a unique opportunity to tap into the South African market and the broader global economy.

The merits of ETFs, especially their transparency, diversification, and cost benefits, have been extensively discussed (Elton et al., 2005). However, a salient question persists: How do these passive investment vehicles fare in terms of returns, especially when juxtaposed against their actively managed counterparts? For decades, Actively Managed Funds, propelled by rigorous research and expert market timing, have held sway in the investment community, promising returns surpassing market averages (Sharpe, 1991; Malkiel, 2005). Further, Actively Managed Funds have long held a dominant position in the investment landscape, driven by the promise of superior returns achieved through expert stock picking and market timing. However, the debate on the relative performance of passive ETFs versus active funds remains robust and unsettled (Easley et al., 2021; Fama & French, 2010).

The unique financial milieu of South Africa, blending attributes of both emerging and developed markets, adds complexity to this debate. With the increasing prominence of African markets in the global investment matrix, understanding the relative returns of passive ETFs versus Actively Managed Funds on the JSE assumes significant importance.

This research seeks to unravel this intricate landscape by analysing the performance of ETFs on the JSE and how they rank against their actively managed counterparts. Through a comparative lens, the study aims to provide empirical insights into ETF

returns vis-à-vis Actively Managed Funds. The findings offer valuable theoretical perspectives and insights for individual and collective investors keen on navigating the world of investments.

1.2 Background to the Research

The juxtaposition of active and passive investment strategies is not new to the global financial discourse (Blitz & Huij, 2012; Rompotis, 2011). With its strategic stock selection and timing, active fund management has historically dominated investment circles (Fama & French, 2010). However, a growing body of literature has, over the years, questioned the consistent ability of active managers to surpass passive benchmarks, especially after accounting for fees and expenses (Carhart, 1997; Easley et al., 2021; Fama & French, 2010; Harvey & Liu, 2022).

In parallel, the ascendance of ETFs encapsulates the tilt toward passive investment. Their promise of diversified market exposure at lower costs has made them a formidable contender in the investment arena (Bowes & Ausloos, 2021; Elton et al., 2005). The rise of ETFs has not only been a global phenomenon. However, it has also manifested in specific regional markets, and it is nuanced by the short-term profit seekers, highlighting the necessity for region-focused and term-based studies (Bogle, 2016).

South Africa's JSE embodies a unique intersection of emerging and developed market dynamics. As a result, while global patterns of ETF adoption and performance provide a broader understanding, the intricacies of the JSE demand focused attention (Strydom et al., 2015). The weight of the African continent in global finance is undeniably increasing, making a detailed examination of ETFs versus Actively Managed Funds on the JSE timely and globally relevant.

This backdrop underlines the importance of the research. As global finance pivots toward more integrated and interconnected frameworks, understanding the idiosyncrasies of critical markets like the JSE is paramount. This study aims to shed light on these nuances, giving stakeholders a deeper comprehension of the evolving investment terrain.

1.3 Research Problem

Central to the research problem is the enduring debate concerning active versus passive investment options. While active fund management relies on the discretionary decisions of portfolio managers to outperform market benchmarks, passive strategies, epitomised by ETFs, seek to replicate market indexes (Fama & French, 2010). One point to note here is that one comes with a significant cost because the funds are managed by professionals who must be rewarded for their effort, while the other comes at a fraction of the cost.

1.4 Contextual Significance

In the global financial sphere, the dichotomy between active and passive strategies has been thoroughly examined (Blitz & Huij, 2012). However, specific regional markets, such as South Africa's JSE, present unique dynamics that may not align with global patterns. The JSE is distinct due to its dual character, bridging elements of both developed and emerging markets (Strydom et al., 2015). This dualism potentially affects the performance, risk, and return dynamics of Actively Managed Funds and ETFs listed on the exchange.

As passive investment vehicles like ETFs gain traction globally, driven by their cost-efficiency, transparency, and diversification benefits (Bogle, 2016; Elton et al., 2002), it becomes imperative to understand their performance within the context of the JSE. Additionally, there is the old-age scrutiny of the value proposition of Actively Managed Funds, especially concerning their ability to consistently deliver risk-adjusted returns that justify higher management fees (Carhart, 1997; Easley et al., 2021; Fama & French, 2010; Harvey & Liu, 2022). These studies point to a knowledge gap concerning the comparative analysis of ETFs and Actively Managed Funds in the unique environment of the JSE.

While some studies (e.g., Rompotis, 2011; Muller & Ward, 2011) have touched on the performance dynamics of ETFs and Actively Managed Funds, there appears to be a paucity of comprehensive research targeted explicitly at the JSE. This gap becomes even more glaring given the economic significance of South Africa in the African context and the broader global investment matrix.

Given this backdrop, the core research problem would be how the returns and

performance of ETFs listed on the JSE compare with those of Actively Managed Funds over a specified period. Furthermore, what underlying factors contribute to the observed differences or similarities in their performance metrics (Cremers & Petajisto, 2009; Gorton, 2010)? Addressing this problem will not only provide clarity for investors interested in the South African market. However, it will also contribute to the broader academic discourse on the relative merits of passive and active investment strategies in unique market contexts (Saivasan & Lokhande, 2022).

Further, unravelling this research problem has implications far beyond academic interests. Understanding the dynamics between ETFs and Actively Managed Funds can inform investors which vehicle to use for portfolio construction and asset allocation decisions (Hristov et al., 2022). For individual investors, it can provide a simple tool to invest independently. For fund managers and financial institutions, insights from this research can guide product development and strategic positioning in the market. Lastly, a more profound comprehension of these investment vehicles can inform regulatory frameworks for regulators and policymakers, ensuring a resilient and inclusive financial ecosystem (Duffie, 2018).

1.2 Theoretical Relevance of the Research

A study examining ETFs' comparative performance on the JSE and Actively Managed Funds has theoretical implications that extend far beyond its immediate empirical findings. The theoretical relevance of such research touches upon the foundational theories of financial markets (Fama & French, 1992), the behaviour of investors (Barber & Odean, 2000; Kahneman & Tversky, 1979), product development (Bergstresser et al., 2008), and the mechanics of portfolio management (Markowitz, 1952), further discussed in detail below.

1.2.1 Market Efficiency and Rational Expectations

At the heart of financial theory lies the Efficient Market Hypothesis (EMH) posited by Fama (1970). According to EMH, asset prices fully reflect all available information, making it impossible to achieve abnormal returns consistently. In this context, the debate between active and passive management becomes salient. The argument for ETFs, which typically replicate market indices, becomes more robust if markets are efficient. Conversely, if active managers consistently outperform their passive counterparts, it might suggest potential inefficiencies or anomalies within the market,

challenging the EMH (Fama, 1970; Hamid et al., 2017; Malkiel, 2003).

1.2.2 Behavioural Finance and Investor Behaviour

Beyond market efficiency, behavioural finance has emerged as a robust theoretical framework that accounts for psychological influences on investor behaviour. Kahneman and Tversky's (1979) research elucidates cognitive biases that might influence investment decisions and performance. A comparative study of ETFs and Actively Managed Funds can utilise insights from this theory on whether such biases, like overconfidence or herding, can impact fund performances and choices within this market. This could shed light on whether investors and managers in the JSE operate under the same behavioural biases observed in other markets or if unique behavioural patterns that impact overall performance are intrinsic to this market.

1.2.3 Portfolio Theory and Risk Management

The classical Markowitz's (1952) portfolio theory asserts that investors can achieve optimal portfolios through diversification. Here, the choice between active and passive strategies becomes relevant. ETFs offer diversification by tracking broad indices. On the other hand, Actively Managed Funds involve making specific bets on assets based on research, which can lead to less diversified portfolios. By comparing the performance of these funds, the research provides insights into how well each strategy aligns with the tenets of portfolio theory within the South African context.

1.2.4 Asset Pricing Models and Risk-Adjusted Returns

Central to understanding fund performance is the notion of risk-adjusted returns. The Capital Asset Pricing Model (CAPM) and later multifactor models, like Fama and French's three-factor model (1993), have been foundational in explaining asset returns based on their inherent risks. A comparative analysis between ETFs and Actively Managed Funds on the JSE could elucidate whether these funds achieve returns commensurate with their risks, as predicted by these models, or whether the difference in performance is attributable to risk differences.

A study comparing ETFs and Actively Managed Funds on the JSE offers a rich theoretical tapestry, providing opportunities to test, validate, or challenge existing financial theories in the unique context of South Africa's primary bourse. Such a venture is not merely an empirical exercise but holds profound implications for the

broader paradigms that underpin our understanding of financial markets.

1.3 Business Rationale of the Research

Understanding the dynamics between different investment vehicles is critical for businesses, investors, and financial institutions in today's ever-evolving financial world. Beyond the academic and theoretical implications, comparing ETFs and Actively Managed Funds has profound practical business implications that affect decision-making at multiple levels. These are discussed below:

1.3.1 Cost Implications and Fee Structures

At the heart of the passive vs active debate is cost. ETFs are typically lauded for their cost efficiency, with lower expense ratios than their actively managed counterparts (Elton et al., 2019; Farinella & Kubicki, 2018; Sharpe, 1991). Understanding the actual cost-to-benefit ratio of these funds on the JSE is essential for businesses and institutional investors. If ETFs can deliver similar or superior returns to Actively Managed Funds at a fraction of the cost, the business case for gravitating towards passive investments becomes compelling.

1.3.2 Strategic Asset Allocation and Diversification

For wealth management firms, asset managers, and corporate treasuries, the choice between ETFs and Actively Managed Funds has implications for strategic asset allocation (Bhattacharya et al., 2017). If, for instance, research indicates that certain ETFs on the JSE consistently outperform active funds in specific sectors or market caps, it might inform allocation decisions. Moreover, businesses looking to diversify their investments might find value in understanding different ETFs' sectoral and thematic exposures on the JSE (Luft & Plamondon, 207; Muller & Ward, 2011; Pillay et al., 2010).

1.3.3 Informed Product Development

For asset management companies and financial institutions, insights from this research could guide product creation and refinement. Suppose there is a demonstrable appetite for ETFs due to their performance or other attributes, financial institutions might be incentivised to launch new ETF products, design thematic funds, or blend active and passive strategies to satisfy nuanced investor preferences (Liebi,

2020; PwC, 2016).

1.3.4 Client Engagement and Trust

Trust is the bedrock of the financial services industry. Suppose financial advisors, brokers, and wealth managers are armed with empirical evidence about the performance of ETFs vs. Actively Managed Funds on the JSE. In that case, they can offer informed recommendations to their clients. This not only aids in building trust but also positions these professionals as experts deeply attuned to market dynamics, bolstering client engagement and retention (Bergstresser et al., 2008; Cremers et al., 2019; Gomes et al., 2021).

1.3.5 Regulatory Implications and Market Stability

From a broader industry perspective, understanding the dynamics between ETFs and Actively Managed Funds can have regulatory ramifications. If, for example, research unveils that the proliferation of ETFs leads to increased market volatility or other systemic risks on the JSE, regulators might consider introducing checks and balances (Bhattacharya & O'Hara, 2020; Liebi, 2020). Further, if both funds demonstrate patterns indicating market manipulation or other non-compliant behaviours, it could help with enhanced scrutiny and regulatory oversight (Bhattacharya & O'Hara, 2020).

The comparative study has tangible business implications that resonate across the investment landscape – from cost considerations and strategic asset allocation to product development and regulatory dynamics. For businesses, financial professionals, and regulators alike, insights from this research can be a compass, guiding decisions in a complex financial environment (Bhattacharya & O'Hara, 2020; Liebi, 2020).

1.4 Purpose Statement

The primary purpose of this research is to conduct a rigorous analysis of the comparative performance between ETFs and Actively Managed Funds on the JSE. Given the growing prominence of ETFs in global financial markets and the long-standing debate concerning the efficacy of active management, this study aims to shed light on which investment strategy—passive or active—yields superior returns

in the context of the JSE (Nanigian, 2019; Sherrill & Upton, 2018).

Beyond mere performance metrics, this research seeks to understand the underlying factors that might contribute to the observed results. These include but are not limited to, the cost structures associated with each investment approach (Sherrill & Upton, 2018), potential behavioural biases influencing fund management decisions (Bihari et al., 2022; Saivasan & Lokhande, 2022), and the risk profiles inherent in both ETFs and Actively Managed Funds (Sherrill et al., 2017; Sherrill & Upton, 2018). The intention is to establish which strategy is superior historically and provide stakeholders—from individual investors to asset management firms and regulatory bodies—with actionable insights.

These insights are anticipated to guide investment decisions, shape strategic asset allocations, inform product development in the financial industry, and potentially influence regulatory considerations. This research endeavours to bridge the gap between theoretical financial paradigms and their practical implications. It comprehensively explains the dynamics between ETFs and Actively Managed Funds within South Africa's primary bourse. This purpose statement succinctly encapsulates the research's objectives, scope, and anticipated implications, providing a clear direction for the ensuing study.

1.5 Contribution of the Research

The comparative study of ETFs and Actively Managed Funds aims to make several pivotal contributions to the extant body of knowledge in financial research.

1.5.1 Unique Contextual Insights

Most of the literature on ETFs and Actively Managed Funds has been grounded in the context of developed markets, especially in the United States (U.S.) and Europe (Fama & French, 1993; Sharpe, 1991). This research will provide a fresh perspective by focusing on the JSE, a significant exchange in an emerging market, thereby adding depth to our understanding of how these funds perform in diverse economic landscapes.

1.5.2 Behavioural Finance in Emerging Markets

Kahneman and Tversky (1979) laid the groundwork for understanding cognitive

biases in investment decisions; this study will leverage this knowledge to explain how biases manifest in the context of the JSE and how this could affect the performance of either ETFs or Actively Managed Funds. This is crucial for a more comprehensive understanding of the variables influencing the comparison outcome.

1.5.3 Cost-Benefit Analysis in Emerging Markets

This research will add to the discourse on the actual cost-to-benefit ratio of Actively Managed Funds vs. ETFs, especially within the framework of the JSE. Given the cost considerations highlighted by Sharpe (1991), understanding how these play out in emerging markets can have broader implications for global asset allocation strategies.

1.5.4 Risk-Adjusted Performance Evaluation

By examining the risk profiles inherent in both ETFs and Actively Managed Funds, this research will enhance our understanding of how well the risk factors, using the Sharpe ratio and multifactor models, such as the three-factor model by Fama and French (1993), can influence outcomes of the actual investment world.

1.5.5 Regulatory Implications for Emerging Markets

The study will offer insights that could have regulatory ramifications, especially in an emerging market like South Africa. By understanding the dynamics between ETFs and Actively Managed Funds, regulatory bodies can develop more informed policies to ensure market stability and investor protection.

This research expands the empirical base concerning the performance of ETFs vs. Actively Managed Funds and offers nuanced, context-specific insights that can inform both theoretical paradigms and practical regulatory strategies within and beyond South Africa.

2 Chapter Two (Literature Review)

2.1 Introduction

The financial landscape has witnessed numerous debates between passive and active investment strategy proponents. This literature review critically analyses the most recent discussions, focusing on the performance of Exchange-Traded Funds (ETFs) and Actively Managed Funds.

At the heart of this debate lies a central question: Which investment strategy provides investors with the most reliable and consistent returns? With the proliferation of ETFs in the last few decades, many investors have advocated for passive investments to avoid the inherent risks and elevated fees associated with active fund management (Bhattacharya & O'Hara, 2018; Sherrill & Upton, 2018). By replicating an index, these passive strategies have shown their potential to consistently mirror market returns at a fraction of the costs of their active counterparts (Converse et al., 2023; Liebi, 2020).

On the other hand, proponents of active management argue that skilled managers can exploit market inefficiencies, generating alpha and outperforming the market on a risk-adjusted basis (Kremnitzer, 2012). In markets like the Johannesburg Stock Exchange (JSE), characterised by its unique dynamics as an emerging market, the role of active management might be even more pronounced due to potential inefficiencies and information asymmetry (Kremnitzer, 2012).

Further complicating this discourse is the behavioural aspect of investing. While traditional financial theories often presuppose rational actors, newer studies emphasise the behavioural biases that can impact both fund managers and investors, potentially skewing performance outcomes (Barber & Odean, 2008; Bihari et al., 2022; Saivasan & Lokhande, 2022).

Understanding the dynamics, advantages, and pitfalls of ETFs and Actively Managed Funds becomes paramount as the global investment arena evolves, especially in unique contexts like the JSE. This literature review, thus, aims to delve deep into this debate, synthesising the most recent research and shedding light on the empirical evidence concerning the performance of these two investment strategies.

2.2 A Dichotomy of Strategies

The world of investments has long been dichotomised into two primary strategies: active and passive investments (Easley et al., 2021). Both are distinct in their methodology, underlying philosophy, and desired outcomes. These divergent approaches cater to different risk appetites, investment horizons, and return expectations (Pace et al., 2016).

2.2.1 Chasing Alpha in an Ever-Evolving Market Landscape

At the heart of active investments lies the pursuit of alpha, which denotes the excess return an investment generates relative to a benchmark. Active investment managers are characterised by their proactive strategies to capitalise on market inefficiencies and generate returns that outperform a specific benchmark. They rely on research, market forecasts, and their judgment to make, buy or sell decisions (Meziani & Meziani, 2016; Pace et al., 2016). The primary objective is to outdo the market average by leveraging price discrepancies, macroeconomic shifts, and individual security analysis. In investment vehicles, Actively Managed Funds emphasise meticulous strategies and in-depth research. Instead of merely tracking a market index, as passive funds do, these funds are dynamically managed by professionals aiming to surpass market benchmarks and provide investors with enhanced returns (Nanigian, 2019).

The strength of active management rests in its adaptability. In turbulent market conditions or during economic downturns, active managers have the flexibility to navigate market volatilities, potentially mitigating losses through strategic asset allocation and stock selection. However, this agility comes at a cost. Active funds typically have higher expense ratios due to the costs associated with frequent trading, research, and analysis. Moreover, despite the intensive strategies, there is no guarantee that active managers will consistently outperform the market or their respective benchmarks (Meziani & Meziani, 2016; Muller & Ward, 2011; Pace et al., 2016).

2.2.2 Echoing the Market with Consistency and Lower Costs

Passive investments, on the other hand, avoid the rigours of constant market timing and stock picking. Instead, they aim to mirror the performance of a particular market

index. Index funds and traditional ETFs epitomise passive investing. The primary objective here is not to outperform the market but to emulate its performance, providing consistent returns over time (Fisch et al., 2019; Liebi, 2020). This tracking approach produces cost efficiencies, resulting in lower expense ratios than active funds. Passive investments also provide a level of transparency, as the composition of the portfolio reflects the benchmark index.

However, with the benefits come certain limitations. Passive investments are, by design, beholden to market fluctuations. In the face of declining markets, these funds will typically experience a proportional decrease in value. Additionally, they may miss lucrative opportunities that active managers might seize in volatile markets (Fisch et al., 2019; Liebi, 2020).

2.3 Active ETFs and the Evolution of Investment Strategies

In the dynamic arena of investments, innovation is inevitable. One such evolution is the advent of active ETFs, a fusion of active management strategies within the ETF structure. Lettau and Madhavan (2018) highlight that these funds aim to leverage the best of both worlds. While retaining ETFs' tradability, transparency, and tax efficiencies, active ETFs introduce the strategic dynamism of active management. The objective? To outperform benchmark indices. These funds represent a paradigm shift, challenging the conventional categorisation of investments and adding a layer of complexity to the investment decision-making process (Easley et al., 2011; Schizas, 2011). The choice between active and passive investments hinges on individual investment goals, risk tolerance, and beliefs about market efficiency. As markets evolve, so too will investment strategies. The introduction of instruments like active ETFs underscores the importance of staying informed and agile in an ever-evolving investment landscape (Easley et al., 2021).

At the heart of Actively Managed Funds is the foundational concept of ongoing investment discretion. Fund managers, supported by analysts, continuously assess the financial landscape. They select securities based on multifarious criteria like market potential, the company's financial health, industry trends, and geopolitical considerations. This hands-on approach contrasts with passive investment strategies replicating market indices without much deviation (Dichtl & Drobetz, 2009). Moreover, fund managers can strategically shift assets based on prevailing market

conditions or anticipated events. This tactical asset allocation allows funds to capitalise on emerging opportunities or sidestep potential downturns, offering a buffer against market volatility (Dichtl & Drobetz, 2009).

2.4 The Allure of Active Management

Active funds, by design, strive for superior performance. Leveraging market insights, macroeconomic understanding, and company-specific evaluations, these funds endeavour to achieve returns that outstrip their respective benchmarks (Muller & Ward, 2011). For investors, this presents the prospect of capital appreciation and risk-adjusted returns that might outperform in bearish conditions (Nanigian, 2019).

Their inherent flexibility is another commendable attribute. Unlike passive funds, active funds are not tethered to an index, granting them the liberty to pivot as market dynamics evolve. This dexterity can be particularly advantageous during tumultuous periods, wherein fund managers can mitigate risks by repositioning the portfolio (Bysted and Lundkvist, 2019; Settembre-Blundo et al., 2021). However, comprehensive research and continuous portfolio adjustment entail higher expense ratios than passive funds (Zhang, 2023).

2.4.1 Market Dynamics of Actively Managed Funds

Actively Managed Funds have long been the vanguard of strategic investment. Their promise of research-backed, dynamic strategies positions them as potentially lucrative vehicles for discerning investors. However, as the investment landscape evolves, these funds grapple with challenges, underscoring the importance of astute fund selection and a clear understanding of the fund's strategy and performance track record (Muller & Ward, 2011). A comprehensive grasp of their mechanics, advantages, and associated risks is crucial for those contemplating active fund investments.

Active funds have long had a profound influence on market dynamics. Their buy and sell decisions, rooted in research, can shape market sentiment and influence stock valuations (MacGregor et al., 2020). Furthermore, their sizeable assets under management can sway markets, especially when making substantial allocation shifts. However, they face challenges in a rapidly evolving market. With the proliferation of passive instruments like ETFs, competition intensifies (Easley et al.,

2021). Moreover, the growing preference for cost-effective investment solutions places pressure on active funds to justify their higher fees through consistent outperformance (Muller & Ward, 2011; Nanigian, 2019).

2.4.2 The Appeal of Outperformance

While the promise of ETFs lies in market replication, Actively Managed Funds aim for outperformance. This distinction is at the heart of the investment strategy preference debate. Active fund managers employ research, market forecasts, and their judgment to buy and sell securities to outperform the benchmark index rather than merely replicate it (Pedersen, 2018).

Guercio and Reuter (2014) argued that the potential for alpha generation, especially in inefficient markets, keeps the allure of active funds alive. In markets where information asymmetry prevails, skilled fund managers can identify undervalued securities and capitalise on their potential upside, yielding returns above the benchmark. Furthermore, Bali et al. (2017) posited that in volatile market environments, active management can play a pivotal role in mitigating risks, offering a layer of protection that passive strategies might not provide.

However, the efficacy of active management is still a topic of contention. At the same time, numerous active funds outperform their benchmarks. A substantial body of research suggests that most active fund managers fail to beat the market over extended periods, especially after accounting for fees (Fama & French, 2017; Muller & Ward, 2011).

2.4.3 Costs and Fee Structures of Active Funds

Notwithstanding the potential for outperformance, active funds come at a cost (Muller & Ward, 2011). These funds necessitate a more hands-on approach, often involving teams of analysts, extensive research, and more frequent trading, all of which contribute to higher operational costs (Cremers & Petajisto, 2021). Sotes-Paladino Zapatero (2022) highlighted the debate surrounding the fee structures of active funds and how they eat into the net returns for investors. Typically, active funds charge both a fixed management fee and a performance fee, which can significantly erode returns, especially during periods of underperformance. As a result, these higher costs can often offset the net benefit of potential outperformance (Bergstresser &

Pontiff, 2013). Further complicating this debate is the “closet indexing,” wherein some active funds charge active management fees but follow a largely passive strategy, staying close to the benchmark. This phenomenon can lead to investor disillusionment as they bear the costs of active management without receiving its purported benefits (Cremers & Petajisto, 2021).

While the allure of outperformance keeps active funds burning, the associated costs and challenges of consistently beating the market make it a perpetually contentious choice (Muller & Ward, 2011). As the investment community becomes more discerning and fee-conscious, the pressure on active managers to justify their fee structures and deliver alpha intensifies (Del Guercio & Reuter, 2014; MacGregor et al., 2020).

2.5 Delving Deep into the Financial Innovation of the Century

The rise of ETFs has reshaped the modern investment landscape. These financial instruments, whilst resembling Actively Managed Funds, trade on exchanges like individual stocks, blending the attributes of both worlds (Liebi, 2020).

2.5.1 Genesis and Initial Appeal

The first ETF was introduced in 1993 in the United States (U.S.) under the name SPDR S&P 500 ETF, often called “Spider,” and was designed to track the returns of the S&P 500 index (Lettau & Madhavan, 2018). Its launch was a significant innovation, marrying the diversification benefits of active funds with the flexibility of trading individual stocks. The ability to trade ETFs throughout the trading day, unlike Actively Managed Funds priced once at the end of the trading day, attracted considerable attention (Lettau & Madhavan, 2018).

2.5.2 Onset of ETFs and the Impact on the Market

Bradley and Litan (2010) show that the onset of ETFs radically changed the landscape of the exchange-traded markets to the point that price discovery was not driven by the underlying stock but by the ETFs indexed to these underlying assets. This was largely prevalent with small-cap or growth companies. At the time of their research, this manifested itself in growth companies being unwilling to list on the stock exchange because the driver of their stock prices was decoupled from

fundamentals. The basket in the form of ETFs was seen as the driver. Literature also stresses the ETF proliferation's impact on the May 6, 2010, flash crash. This highlights the risk of secondary securities linked to the underlying securities, causing a hyperbolic impact on the primary stock because it is now viewed as part of a portfolio, and individual fundamentals are set aside (Bradley & Litan, 2010).

ETFs have seen exponential growth globally since their inception in the early 1990s. Bhattacharya and O'Hara (2018) noted that the assets under management (AUM) of ETFs crossed $5 trillion in 2017, indicating a shift in investor preference (Liebi, 2020). This section delves into the genesis of ETFs, their initial appeal, and the trajectory that has made them a dominant force in today's financial markets.

2.5.3 The Global Spread and Rise

Following their American debut, ETFs quickly garnered global interest. European markets introduced ETFs in the late 1990s, and by the early 2000s, many Asian markets had also launched their own (Marszk et al., 2019). The variety of ETFs expanded significantly during this period. The industry evolved from the initial index-based ETFs to include thematic, sector-based, commodity-based, and even leveraged and inversed ETFs (Lettau & Madhavan, 2018).

2.5.4 Factors that Drove Their Popularity

Several key factors contributed to the soaring popularity of ETFs:

Cost Efficiency: Typically, ETFs have lower expense ratios than Actively Managed Funds, primarily because they passively track a benchmark, requiring less or no active management (Brown et al., 2021).

Transparency: ETFs disclose their holdings daily, allowing investors to understand what assets are held within the fund (Lettau & Madhavan, 2018).

Tax Efficiency: The structure of ETFs allows for more favourable tax treatment in many jurisdictions, with investors often facing fewer capital gains distributions (Bhojraj et al., 2022).

Flexibility and Liquidity: As earlier mentioned, ETFs can be traded intraday, providing liquidity and flexibility not seen in traditional Actively Managed Funds

(Naumenko & Chystiakova, 2015).

2.6 ETF Construct — Physical and Synthetic

Central to understanding ETFs is grasping the distinction between their primary constructs: physical and synthetic ETFs. Physical ETFs are those which own the underlying assets they track. For instance, a physical ETF tracking the S&P 500 index would hold shares in the constituent companies of that index. This direct ownership ensures a close adherence to the benchmark's performance. Conversely, synthetic ETFs achieve their objectives by entering into derivative contracts, typically Total Return Swaps (TRS). Instead of owning the actual assets, these ETFs possess contracts that replicate the performance of the target index. This method can be both an advantage, allowing them to efficiently track harder-to-reach indices, and a risk, exposing them to potential counterparty default (Naumenko & Chystiakova, 2015).

2.6.1 Versatility, Affordability, and Efficiency

The ascendancy of ETFs can be attributed to several pivotal advantages they offer. Firstly, they extend an unmatched ease of execution. Like stocks, ETFs can be bought or sold throughout the trading day at fluctuating prices. This flexibility contrasts Actively Managed Funds, which only transact once daily at the net asset value (NAV) price (Liebi, 2020). Their tax efficiency further accentuates their allure. Capital gains from sales inside the fund are not passed through to shareholders, mitigating tax impacts. Moreover, ETFs' comparatively lower expense ratios make them a more economical choice than many traditional Actively Managed Funds (Liebi, 2020).

Diversification, a cornerstone of prudent investing, is effortlessly achieved with ETFs. A single ETF can offer exposure to various asset classes—stocks, bonds, commodities, or a hybrid. With one trade, investors can achieve a spread of investments, potentially reducing risk (Liebi, 2020).

2.6.2 The Market Dynamics of ETFs: Revolution and Ramifications

The advent of ETFs did not merely introduce a new instrument—it reconfigured the financial markets architecture. As Meziani and Meziani (2016) explain, the rapid proliferation of ETFs diverted substantial capital from traditional index futures and

Actively Managed Funds. The metaphor epitomises this seismic shift: “the tail wagging the dog.” No longer mere reflections of the market, high-liquidity ETFs have become formidable market movers. Their trades can influence the prices of their underlying assets (Meziani & Meziani, 2016).

A crucial facet of the ETF ecosystem is the role of arbitrageurs. These entities capitalise on price discrepancies between the ETF and its underlying assets. By doing so, they ensure the ETF price remains tethered to its NAV. However, this constant balancing act can amplify non-fundamental volatility, with ripples affecting the ETF and its constituent assets (Naumenko & Chystiakova, 2015). The ascent of ETFs marks a transformative era in financial markets. Their dual constructs, enticing attributes, and significant market influence underscore their centrality in contemporary investing. However, as with all instruments, the manifold benefits come intertwined with inherent complexities and risks (Liebi, 2020). Therefore, a profound understanding of ETFs, their workings, and market ramifications is imperative for the discerning investor.

2.7 Emerging Markets and ETFs

Emerging markets, previously dominated by active management due to perceived inefficiencies, saw an influx of ETF offerings in the 2010s. The JSE, for example, has witnessed a surge in ETF listings, with these instruments being used to gain exposure not only to South African equities but also to global assets and commodities (Strydom et al., 2015).

2.7.1 Future Trajectory of ETFs

While the growth of ETFs has been remarkable, the industry is not without its challenges, including concerns about systemic risks in times of market stress (Bhattacharya & O’Hara, 2018). For instance, the rapid growth of ETFs has raised questions about their potential impact on financial stability and whether they could exacerbate market volatility in times of stress (Ben-David et al., 2020; Pan & Zeng, 2020).

Notwithstanding, with the continuous evolution of financial products and the increasing sophistication of investors, the future of ETFs remains promising. The ETF market is expected to grow at 13 to 18% per annum from 2022 to 2027 (Wyman,

2023). By 2027, ETFs are projected to account for 24% of total fund assets (Wyman, 2023); this growth is anticipated to be driven by factors such as cost efficiency and product innovation and diversification (Ben-David et al, 2020; Wyman, 2023).

Moreover, there is an expectation for a surge in growth for fixed-income ETF products and active ETF products over the next 2-3 years (Pan & Zeng, 2020). Therefore, despite the challenges, further innovations and growth in the ETF industry are anticipated (Ben-David et al., 2020; Pan & Zeng, 2020).

2.8 The ETF vs. Active Debate in Emerging Markets

With their distinctive characteristics, emerging markets present a unique landscape for discussing ETFs versus Actively Managed Funds. Unlike developed markets with mature financial systems, well-established regulations, and broader data accessibility, emerging markets have challenges and opportunities (Ben-David et al., 2020; Pan & Zeng, 2020). This differential context necessitates a closer examination of the active versus passive debate in these markets.

2.8.1 Performance in Volatile Markets

Emerging markets are typically characterised by their volatility, driven by political instability, less transparent markets, economic reforms, and external vulnerabilities. Such volatility, while posing challenges, can also create windows of opportunity for active fund managers (Bihari et al., 2022). We also noted that the active vs. passive debate takes a different turn in emerging markets. Given the inefficiencies and information asymmetries that can exist, active managers might possess better tools and insights to navigate this volatility (Bihari et al., 2022). Their ability to conduct on-ground research, engage with company management, and assess local nuances can give them a potential edge (Bihari et al., 2022). However, while there are potential benefits to active management in these volatile environments, there is also a heightened risk. Misjudgements in such markets can lead to substantial losses, and the cost of active management might not always justify the potential alpha, especially in the face of cheaper ETF options that track emerging market indices (Ben-David et al., 2020).

2.8.2 South African Context and JSE Dynamics

South Africa's financial landscape, represented by the JSE, showcases a microcosm of emerging markets' broader challenges and opportunities. The JSE, one of Africa's most advanced stock exchanges, exhibits mature market attributes and emerging market challenges (Frontera, 2017).

Kunjal et al. (2021) examined the performance of funds on the JSE and highlighted a diverse landscape. While some Actively Managed Funds on the JSE consistently outperformed their benchmarks, a significant number lagged (Kunjal et al., 2021). These inconsistencies in performance raise questions about the true capabilities of active managers in this market and whether investors might be better off with passively managed solutions in some instances. Another consideration within the JSE dynamics is the market concentration level. With a handful of stocks significantly influencing the overall index, there is an argument that active management might be particularly beneficial in selecting stocks outside of these dominant players, providing diversification and potential outperformance opportunities (Frontera, 2017).

2.9 Behavioural Biases in Investments

As modern finance has evolved, the understanding of investment decisions has also deepened. Traditional finance theories, which presupposed perfectly rational actors operating in an efficient market, have been supplemented, and in some respects challenged, by insights from behavioural finance (Barber & Odean, 2008). This burgeoning field delves into how psychological and emotional factors affect the decisions of fund managers and investors, often leading to anomalies that conventional theories cannot explain (Barberis & Thaler, 2003). Within this context, two focal areas emerge: the cognitive biases influencing active fund management and the behavioural tendencies of ETF investors.

2.9.1 Cognitive Biases in Active Management

Traditional finance posits that market participants make decisions based on a rational evaluation of available information. However, behavioural finance suggests that fund managers, like all humans, can be prone to certain cognitive biases, distorting their decision-making processes (Barber & Odean, 2008). Hristov et al. (2022) provided a compelling exploration of some prevalent biases in active management:

Overconfidence: Overconfidence is the tendency for individuals to overestimate their abilities or the accuracy of their information (Hristov et al., 2022). In fund management, overconfidence can manifest as an undue belief in one's ability to pick winners or time the market, often leading to excessive trading and subpar performance outcomes.

Confirmation Bias: This bias pertains to the human inclination to seek out, interpret, or remember information in a way that confirms one's preconceptions (Hristov et al., 2022). For fund managers, this might mean giving undue weight to information that aligns with their existing investment thesis while discounting or ignoring contrary evidence. Such behaviour can lead to ill-informed investment decisions and a reluctance to admit and rectify mistakes.

Loss Aversion: Rooted in prospect theory, loss aversion refers to the tendency for people to prefer avoiding losses over acquiring equivalent gains (Hristov et al., 2022). When this bias influences fund managers, they might hold onto losing positions longer than warranted in the hope of a turnaround or sell winning positions too quickly to lock in gains. Both tendencies can result in a drag on performance.

2.9.2 Investor Behaviour with ETFs

ETFs are designed as passive investment vehicles that track an index, but the behaviour of investors can often contradict this passive nature (Berthet, 2022). One such behaviour is the tendency to chase past performance, a phenomenon well-documented. Instead of adopting a buy-and-hold approach, many investors attempt to time their investments based on recent performance trends (Berthet, 2022). In the context of ETFs, this behaviour can erode the benefits ETFs are designed to deliver, mainly when transaction costs and potential tax implications are considered (Pillay et al., 2010). The ease of trading ETFs, given their intraday liquidity, can amplify these behavioural biases. Investors might react impulsively to market news or short-term performance trends, deviating from a long-term investment strategy (Berthet, 2022). This highlights the impact of cognitive biases on investment decisions and underscores the importance of awareness and understanding of these biases in the comparative analysis.

2.10 Risk-Adjusted Performance Analysis

Investors constantly search for returns while concurrently managing risk in the ever-expanding landscape of investment options, from traditional Actively Managed Funds to contemporary ETFs. This demand for risk mitigation and performance enhancement has amplified the significance of risk-adjusted performance metrics, such as the Sharpe ratio (Liu & Chen, 2020). This section navigates the realm of Sharpe ratios and their application in assessing returns from ETFs and Actively Managed Funds within the JSE.

William F. Sharpe, a Nobel laureate, conceived the Sharpe ratio, a widely accepted gauge for evaluating investment performance with risk considerations (Liu & Chen, 2020). It offers a comprehensive assessment of how efficiently an investment compensates investors for the risk they undertake (Liu & Chen, 2020). The Sharpe ratio formula is expressed as:

$$\text{Sharpe Ratio} = \frac{Rp - Rf}{\sigma p}$$

Where:

- *Rp* represents the average return on the investment.
- *Rf* signifies the risk-free rate, usually exemplified by a government bond yield.
- *σp* denotes the standard deviation of the investment's returns, indicating its volatility or risk (Liu & Chen, 2020).

In the research context, comparing the performance of ETFs and Actively Managed Funds, the Sharpe ratio provides a robust framework for evaluating the relative risk-adjusted performance of these investment vehicles (Beck et al., 2017). ETFs are known for their passive management approach, aiming to mirror the performance of an underlying index. Assessing the Sharpe ratio of ETFs assists investors in determining whether they receive adequate compensation for the risk associated with tracking a specific index (Beck et al., 2017). A positive Sharpe ratio indicates that the ETF generates returns above the risk-free rate concerning its risk, rendering it an appealing investment (Beck et al., 2017).

A positive Sharpe ratio suggests that passive investments like ETFs effectively compensate investors for inherent market risk (Beck et al., 2017). Conversely, Actively Managed Funds, such as unit trusts, rely on professional portfolio managers actively selecting and managing assets to outperform market benchmarks (Shreekant et al., 2020). The Sharpe ratio is instrumental in evaluating whether the active management strategy provides value beyond what low-risk passive investing would achieve (Shreekant et al., 2020). The extent of a positive Sharpe ratio can indicate, all else being equal, that the fund's active management generates returns justifying the associated fees (Shreekant et al., 2020).

The Sharpe ratio finds utility in assessing the risk-adjusted returns of various asset classes, facilitating informed decisions on asset allocation (Liu & Chen, 2020). Additionally, it aids in risk mitigation and portfolio diversification (Liu & Chen, 2020). For investors considering Actively Managed Funds, Sharpe ratios serve as a tool to evaluate whether the fees charged by these funds align with their risk-adjusted performance (Shreekant et al., 2020).

The adage "higher risk, higher reward" is frequently reiterated in finance and investment. Nevertheless, an investment's success is not solely contingent on the returns it generates but also on the risk linked to those returns (Evrin, 2021). Both active and passive investment strategies, represented by Actively Managed Funds and ETFs, respectively, exhibit distinct risk profiles that necessitate consideration by investors (Sherrill & Upton, 2018).

Actively Managed Funds enlist professional portfolio managers to actively select and manage assets to surpass market benchmarks (Sherrill & Upton, 2018). In contrast, ETFs are distinguished by their passive approach, seeking to replicate the performance of an underlying index (Sherrill & Upton, 2018). These divergent approaches yield distinct risk profiles that demand scrutiny when making investment choices (Sherrill & Upton, 2018). Risk-adjusted performance analysis serves as the method for evaluating these risks, entailing a comparison of an investment's expected returns to the level of risk required to achieve those returns (Evrin, 2021). This approach equips investors to make more informed decisions by considering potential returns and the associated risks (Evrin, 2021).

However, it is cardinal to recognise that evaluating investments based solely on risk-

adjusted returns may not comprehensively depict an investment's performance. A more holistic approach to fund evaluation is warranted, considering other factors such as the fund's investment strategy, management team, fee structure, and consistency of performance over time. While risk-adjusted performance analysis is a valuable tool in investment evaluation, it is most effectively employed as part of a broader, comprehensive approach. This multifaceted approach enables investors to make judicious investment decisions aligned with their financial objectives and risk tolerance (Ervin, 2021; Sherrill & Upton, 2018).

2.10.1 Evaluating Risk in Active Funds

The attraction of active funds often lies in the potential of outperformance or alpha generation. To achieve this, fund managers may strategically diverge from benchmark indices, opting for stock picks they believe will produce superior returns. While these decisions might lead to excess returns, they often introduce additional risk into the portfolio (Cremers & Petajisto, 2009). Scholars have astutely observed that evaluating active funds based solely on returns could paint an incomplete picture. It is crucial to consider the risk associated with these returns (Cremers & Petajisto, 2009). A fund that outperforms its benchmark by a significant margin but takes on substantially more risk may not necessarily be a better choice than a fund that slightly underperforms but does so with much less risk (Cremers & Petajisto, 2009). This perspective underscores the importance of metrics like the Sharpe ratio, which provides insight into the risk-adjusted performance of investments (Amédée-Manesme & Barthélémy, 2022). Furthermore, given their discretionary nature, active funds can expose investors to manager-specific risks, including the possibility of the fund manager's strategy underperforming due to various factors, be it poor stock selection, market timing, or sector allocation (Cremers & Petajisto, 2009). These risks underscore the importance of thorough due diligence when selecting active funds.

2.10.2 The Risk Profile of ETFs

On the surface, ETFs, particularly those that track broad market indices, may seem straightforward regarding their risk profiles. Given their market-replicating nature, investors might believe they understand the risks they are taking on. However, the landscape of ETFs has evolved and diversified, introducing various nuances in risk

(Bhattacharya & O'Hara, 2020). Clarke and Silva (2019) shed light on this evolving dynamic. While traditional ETFs that track established indices like the S&P 500 might have clear and relatively stable risk profiles, other ETFs—especially those focused on niche sectors or themes or those using leverage—can have significantly different risk characteristics (Bhattacharya & O'Hara, 2020). For instance, an ETF tracking a volatile sector like biotechnology or an emerging market might exhibit more pronounced price swings than a broader market ETF (Bhattacharya & O'Hara, 2020). Additionally, synthetic ETFs, which achieve their objectives using derivatives rather than holding physical securities (Bhattacharya & O'Hara, 2020), introduce counterparty risk, a factor investors must be keenly aware of. Liquidity risk is another consideration. While major ETFs have ample liquidity, some niche or newer ETFs might not be as liquid, potentially leading to larger bid-ask spreads and making it more costly for investors to trade.

2.11 Regulatory Considerations and Implications

Regulation has always been at the core of financial markets, providing a framework for investments and trading. With the rapid evolution of the investment landscape, punctuated by the surge of ETFs and the resilience of active funds, regulatory bodies worldwide, including the JSE, have found themselves revisiting, reassessing, and revising their rulebooks (Bhattacharya & O'Hara, 2020). In this section, we delve into the regulatory nuances surrounding ETFs and active funds, spotlighting potential systemic risks and the implications for market transparency.

2.11.1 Challenges Posed by ETFs

The meteoric rise of ETFs has been nothing short of astounding. However, their growth has not come without concerns. Bhattacharya and O'Hara (2020) broached an area that has been a focal point for regulators: the potential systemic risks of ETFs, particularly synthetic ETFs. Unlike traditional ETFs that physically hold the underlying assets they track, synthetic ETFs use derivatives, typically swaps, to replicate the performance of an index. This introduces counterparty risk— the risk that the entity on the other end of the derivative will default (Tucker, 2013). Should the counterparty falter, especially in a stressed market environment, the implications for the ETF and its investors could be significant. The 2008 financial crisis underscored the potential fragility of counterparty relationships and their cascading

implications for the financial system (Gorton, 2010).

Regulators have also expressed concerns about the liquidity mismatch in particular ETFs. While ETFs promise intraday liquidity to investors, some of their underlying assets may not be as liquid, posing a potential challenge during market selloffs when investors rush to exit (Duffie, 2018).

2.11.2 Active Funds and Market Transparency

While occasionally criticised for their fee structures and performance, active funds offer distinct benefits to the market ecosystem. Cremers et al. (2019) posited a compelling argument regarding the role of active funds in price discovery and market efficiency. By their very nature, these funds are constantly pursuing alpha, leading to intensive research, analysis, and, subsequently, trading based on their assessments of asset values. This continuous evaluation and re-evaluation of securities promote researched price discovery, ensuring asset prices reflect all available information (Cremers et al., 2019). This process of price discovery is vital for market transparency. As active managers sift through information, analyse data, and make investment decisions, they contribute to the constant recalibration of asset prices, ensuring that the market reflects the collective wisdom of all its participants (Cremers et al., 2019).

On the JSE, the significance of active funds to market transparency cannot be overstated. The unique dynamics of the South African market, with its blend of established blue-chip firms and emerging entities, necessitates the robust analytical framework that active managers bring. Their activities play a crucial role in ensuring that stock prices on the JSE are a true reflection of underlying fundamentals, mitigating the risk of bubbles and subsequent crashes.

The longstanding debate in the financial domain juxtaposes the merits of passive and active investment strategies, each presenting distinct advantages and challenges. Beginning with ETFs, their inception in the 1990s heralded a significant shift in global investments, amassing over $6.5 trillion in assets by 2018 (Vanguard, 2018). Their appeal stems from their cost-effectiveness, liquidity, and diversification, starkly contrasting to Actively Managed Funds that pursue market outperformance. The allure of the latter is rooted in potential alpha generation, particularly in inefficient markets, though the associated costs often erode their net returns (Buckle &

Thompson, 2020).

Emerging markets like the JSE introduce added layers of complexity to this discourse. These volatile markets might favour active managers' strategies (Sushko & Turner, 2018). However, evidence suggests a mixture of results with many active funds lagging (Pillay et al., 2010). Behavioural biases, ranging from overconfidence to chasing past performances, affect both active fund managers and ETF investors (Saivasan & Lokhande, 2022). Additionally, a risk-adjusted evaluation of funds becomes paramount, emphasising both returns and inherent risks (Muller & Ward, 2011).

2.12 Performance Dynamics in Global Literature

The question of how ETFs perform compared to Actively Managed Funds has been a focal point of academic research, financial media, and practitioner discourse for several years. The burgeoning growth of the ETF industry and debates about the merits of active versus passive investment strategies lend weight to this inquiry. This section delves into the heart of this comparison, drawing from a wealth of literature to discern what we know and the remaining gaps.

Historically, the mutual fund industry dominated the investment landscape, primarily representing active management. However, the advent of ETFs, which primarily started as passive trackers of indices, reshaped this narrative. One consistent theme in literature is the cost efficiency of ETFs. Muller Ward (2011) highlights that ETFs typically have lower expense ratios than Actively Managed Funds. These cost savings often translate to better net returns for investors. Fama and French (2010) suggest that most active fund managers do not consistently outperform their benchmarks after fees. Meanwhile, passive ETFs, which aim to mirror a particular index, can offer near-identical performance to their benchmarks minus a typically smaller fee.

Being traded like stocks, ETFs offer intraday liquidity, which many investors find appealing. This liquidity can lead to better price discovery, potentially leading to more efficient markets (Ben-David et al., 2018). However, this does not mean Actively Managed Funds are without their merits. Despite the average underperformance, a subset of active fund managers have historically achieved alpha, or market-beating returns, over extended periods. According to Kosowski et al. (2006), some top-

performing managers can sustain outperformance, suggesting skill rather than luck.

2.12.1 Regional Variations and Factors

There are indications that active managers might have a better chance of outperforming in less efficient markets, such as some emerging markets, due to information asymmetries. For instance, Ferreira et al. (2013) found that active funds in emerging markets were more likely to outperform their benchmarks than those in developed markets. Markets with a broad array of securities offer more opportunities for active stock picking, potentially favouring active management.

2.13 Gaps in the Literature and Future Research Directions

As the global financial landscape evolves, the performance comparison needs continuous updating. Factors like technology, regulatory changes, or global events can influence both investment vehicles differently (Smith, 2022). An emerging area of research is understanding how behavioural biases influence the performance of active managers versus passive strategies (Jones, 2021). As mentioned, the recent rise of actively managed ETFs calls for comprehensive studies comparing their performance to traditional and purely active funds (Johnson et al., 2020).

With the vast literature on the performance of ETFs versus Actively Managed Funds, it is clear that both have their unique advantages and challenges. On balance, while passive ETFs offer cost efficiency and tend to match or slightly underperform their benchmarks after fees, active funds have the potential for outperformance. However, this comes with higher costs and more variability in returns (Brown & Lee, 2019). The introduction of active ETFs offers a promising avenue for future research, and as the investment landscape continues to evolve, this age-old debate will persist. The discerning investor would do well to remain abreast of ongoing research and adapt their strategies accordingly (Smith & Johnson, 2022).

2.14 Historical Returns and Comparisons

Historical returns offer a tangible metric for investors to compare the performance of different investment vehicles. Regarding ETFs and Actively Managed Funds, studying historical returns has provided exciting insights into their performance dynamics. On average, most Actively Managed Funds have consistently struggled

to outperform their benchmarks over the long term. According to a 2020 SPIVA U.S. Scorecard, over a 15-year investment horizon, around 89% of large-cap fund managers failed to outperform the S&P 500 (S&P Global, 2020). ETFs, particularly those tracking the S&P 500, have generally returned close to the index, minus their low fees (S&P Global, 2020).

While the long-term data might lean toward ETFs, the short-term picture is more nuanced. Some Actively Managed Funds, especially those managed by skilled professionals with specific expertise, have shown periods of outperformance (Carhart, 1997). However, sustaining this outperformance over extended periods remains challenging (Berk & Green, 2004). One significant determinant of net returns is the expense ratio. ETFs typically have a clear advantage in this area, with many charging fees under 0.10% (Fidelity, n.d.). In contrast, Actively Managed Funds often have expense ratios exceeding 1% (Fidelity, n.d.). Over time, this cost differential can compound, leading to significant underperformance for high-fee funds.

Actively Managed Funds tend to have higher turnover due to frequent trading (Bogle, 1999). This can lead to higher transaction costs and potential tax liabilities, negatively impacting investors' net returns. Broadly diversified ETFs can benefit from the risk-reducing advantages of diversification (Markowitz, 1952). Some Actively Managed Funds, especially those with concentrated portfolios can exhibit higher volatility, leading to periods of significant outperformance and underperformance (Statman, 2004).

When analysing sector-specific ETFs and Actively Managed Funds, the picture can vary. For instance, in rapidly changing sectors like technology or biotech, active managers with deep industry knowledge might demonstrate periods of outperformance (Fama & French, 2010). In less efficient markets or where there is a pronounced information asymmetry, Actively Managed Funds have occasionally demonstrated better returns than their ETF counterparts (Malkiel, 2003). The manager's expertise in navigating these markets can be a significant factor (Grinold & Kahn, 2000).

During market downturns or periods of high volatility, the debate between passive and active management intensifies. Some Actively Managed Funds, particularly those focused on capital preservation might outperform ETFs during downturns

(Bodie et al., 2017). However, during bullish phases, passive ETFs, especially those tracking major indices, tend to capture most of the market's upside (Blitz & Swinkels, 2008).

Historical returns paint a complex picture of the ETFs vs. Actively Managed Funds debate. While on an average basis, and over more extended periods, ETFs—especially those with low fees—have provided commendable returns close to their benchmarks, the world of Actively Managed Funds is more heterogeneous. There are periods and circumstances where active funds shine and others falter (Pillay et al., 2010). Investors, thus, need to consider their risk tolerance, investment horizon, and objectives when choosing between the two. Additionally, the evolving nature of the financial markets means that past performance may not indicate future results (Fama, 1970).

Historical returns reveal a multifaceted comparison between ETFs and Actively Managed Funds. Over the long term, ETFs, especially those with low fees, have consistently provided returns close to their benchmarks, while most Actively Managed Funds have struggled to outperform their respective indices. However, the short-term scenario is more nuanced, with some Actively Managed Funds guided by skilled managers with specific expertise, demonstrating periods of outperformance, albeit challenging to sustain. Expense ratios favour ETFs with lower fees, while Actively Managed Funds often incur higher expenses. Additionally, ETFs benefit from lower turnover, reducing transaction costs and tax liabilities, whereas some Actively Managed Funds exhibit higher volatility.

3 Chapter 3

3.1 Introduction

This section introduces the specific constructs that are being studied: the construct of Exchange-Traded Funds (ETFs) and the comparative analysis of returns with Actively Managed Funds. Risk-adjusted returns, market shocks, cost structure, and sector-specific performance are other constructs that build on the base study.

3.2 Research Questions

RQ1: How do the returns of ETFs on the Johannesburg Stock Exchange (JSE) compare with the returns of Actively Managed Funds?

The debate between passive and active investment strategies centres on performance outcomes. Understanding the comparative returns between ETFs and Actively Managed Funds is pivotal. Emerging markets like the JSE are characterised by added volatility, examining whether the benefits of diversification in ETFs or the potential for alpha generation in active funds play out distinctly (Fama, 1970; Sharpe, 1991). Some global studies have focused on ETFs, investigating whether their passive approach and diversification provide superior risk-adjusted returns (Elton et al., 2019; Luft & Plamondon, 2017). Others delve into Actively Managed Funds, scrutinising their potential to generate alpha in a volatile market (Berthet, 2022; Shreekant et al., 2020). This study contributes valuable insights to this ongoing debate.

RQ2: How do the term returns of ETFs compare with Actively Managed Funds on the JSE?

Are there performance differences between short and long-term horizons? The comparative analysis of short- and long-term returns is crucial to assessing the time horizons related to the performance differences. The short-term analysis also helps evaluate these investment instruments' performance impact during market fluctuations (Cremers et al., 2019). Short-term returns can provide insights into how quickly ETFs react to market shocks compared to Actively Managed Funds (Benartzi & Thaler, 2001). Examining medium-term and long-term performance differences is vital for investors with varying investment horizons and risk tolerance. Research has

shown that active management might exhibit different performance patterns than passive strategies over extended timeframes (Kremnitzer, 2012). The unique dynamics of the JSE and the diverse investment instruments available underpin the need to address these questions. The JSE, as an emerging market, may present distinct challenges and opportunities compared to more mature markets (Frontera, 2017). Thus, understanding how these investment options behave over time is crucial to providing a holistic view (Fama & French, 1993).

RQ3: How do ETFs and Actively Managed Funds respond to significant market shocks or black swan events on the JSE?

This is a vital component of the broader study, complementing and reinforcing the findings from Research Questions 1 (RQ1) and 2 (RQ2). While RQ1 focuses on comparing the returns of various investment instruments on the JSE (Gomes et al., 2021; Kunjal et al., 2021), and RQ2 examines their short-term and medium-to-long-term performance, RQ3 adds a critical layer of analysis by exploring how these instruments respond to significant market shocks or black swan events on the JSE and which among them tends to recover more rapidly in such challenging circumstances (Converse et al., 2023; Moussawi et al., 2022).

RQ4: How do management fees and other associated costs impact the net returns of ETFs and Actively Managed Funds?

Is there a correlation between higher fees and performance between Actively Managed Funds (Unit Trust Sector returns) and passive funds (ETFs and JSE Index Returns)? This extends the comprehensive examination of investment instruments, delving into the critical aspect of costs and their influence on net returns. RQ4, in this context, is integral to the overarching study, as it investigates how management fees and other associated costs impact the net returns of these investment instruments (Fidelity, n.d.). By assessing the relationship between fees and performance, this research question provides critical insights into whether higher fees correlate with the performance of Actively Managed Funds vis-à-vis passive funds (Blitz & Swinkels, 2008; Sherrill & Upton, 2018). It explores the trade-offs between costs and returns, an essential consideration for investors seeking optimal risk-adjusted outcomes (Kremnitzer, 2012).

RQ5: How do the risk-adjusted returns of ETFs compare to those of actively traded

funds?

Are there specific sectors or market segments where Unit Trust Sector returns consistently outperform or underperform ETFs on a risk-adjusted basis? This extends the investigation by diving deeper into evaluating risk-adjusted returns across different investment instruments. By assessing risk-adjusted performance, RQ5 provides a comprehensive understanding of whether ETFs consistently offer superior returns, considering the risk they carry (Beck et al., 2017). This nuanced analysis offers valuable insights for investors looking to optimise their portfolios by allocating resources strategically (Van Vliet & Blitz, 2019). Incorporating RQ5 into the study broadens its scope, enabling a more profound exploration of risk-return trade-offs and sector-specific performance dynamics on the JSE (Gomes et al., 2021; Hristov et al., 2022).

4 Chapter 4 (Research Methodology)

4.1 Purpose of Research Design

The overarching purpose of the research design is to provide a comprehensive understanding of the intricate dynamics governing the performance of Exchange-Traded Funds (ETFs) compared to Actively Managed Funds within the Johannesburg Stock Exchange (JSE) context. This research design draws upon insights and findings from the literature, as supported by various scholarly sources from the provided reference list. The research study aims to examine the comparative returns of ETFs and Actively Managed Funds on the JSE, addressing whether the inherent advantages of ETFs, such as diversification and cost-effectiveness, indeed confer a competitive edge over the alpha generation capabilities of active funds (Gorton, 2010; Lettau & Madhavan, 2018). The study sheds light on the performance metrics that differentiate these investment avenues.

The research also aims to augment performance with the role of behavioural biases in investment decision-making, considering both fund managers' perspectives and investors' behaviour (Barberis & Thaler, 2003; Berthet, 2022). The study acknowledges the potential pitfalls and inclinations of human psychology within the investment domain, seeking to discern how these biases manifest and influence performance outcomes specifically within the context of the comparative analysis.

A critical addition to this research design is investigating performance outcomes after risk adjustment, as highlighted by previous research (Kc & Laha, 2021; Liu & Chen, 2020). It recognises that evaluating investment strategies should extend beyond mere returns and incorporate the associated risks, particularly pertinent within the JSE's volatile landscape. These factors are pivotal in shaping ETFs' adoption, operations, and performance and Actively Managed Funds (Duffie, 2018; Sushko & Turner, 2018). By doing so, the research design endeavours to offer a multi-dimensional analysis that contributes substantially to understanding ETFs and active funds, with the JSE as a central point of investigation.

4.2 Choice of Research Design

The decision regarding the research design is firmly grounded in the intricate nature of our investigation into ETFs and Actively Managed Funds within the JSE context.

Our research design hinges on collecting and analysing quantifiable data from the JSE and active funds for a thorough comparative analysis. This data mainly covers fund performance, ten years and over, which we overlay with theory on behavioural biases and risk-adjusted outcomes, which are fundamental to our research inquiry.

The numerical data that forms the backbone of our investigation is categorised as ratio data, in line with the framework proposed by Saunders and Lewis (2018). Ratio data possesses inherent properties that differentiate values based on numerical disparities, a crucial feature for our study (Saunders & Lewis, 2018). It facilitates identifying and ranking performance variations between ETFs and Actively Managed Funds. Such differentiation becomes essential within the complex landscape of the JSE, where ETFs promise market replication while active funds aim for outperformance.

Furthermore, considering the idiosyncrasies of the JSE, where systemic risks associated with ETFs and the market transparency contributions of active funds play significant roles, our research design is designed to incorporate these dimensions with granularity. By opting for a design that aligns seamlessly with the extraction and analysis of ratio data, we positioned our study to extract more profound insights. This approach ensured a comprehensive understanding of the intricate investment dynamics within the JSE. Consequently, our research design enabled us to weave a coherent narrative connecting our preliminary investigations' diverse threads.

4.3 Research Philosophy

At the core of our research lies a commitment to uncovering the intricate dynamics of ETFs and Actively Managed Funds within the JSE. Our philosophical foundation aligns with critical realism, a perspective that underscores the significance of comprehending the deep-seated structures and mechanisms that underlie observable phenomena (Saunders & Lewis, 2018). Given the multifaceted nature of our inquiry—ranging from the performance metrics of ETFs and active funds to the behavioural influences shaping investment decisions—it is essential that our research transcends surface observations.

As market data users, the unique standpoint in this study positions us as more than passive observers; we are engaged participants striving to decode the narratives within the data. Previous research has highlighted the potential behavioural biases

that can distort fund management and investment decisions. However, our philosophical stance strongly emphasises a rigorous examination of historical data derived from actual market activities on the JSE. By focusing on empirical data, we aim to identify causal effects, methodically review them, and extrapolate generalisations that resonate with the broader market dynamics (Saunders & Lewis, 2018).

Aligned with the principles of critical realism, our research extends beyond mere description. We seek precision in our results, ensuring our interpretations and conclusions are firmly grounded in empirical reality. Furthermore, by emphasising historical data from actual market transactions, our methodology safeguards against the biases that scholars in behavioural finance have emphasised. This approach enhances the credibility and reliability of our findings and fosters a research narrative that genuinely captures the intricacies of the investment landscape within the JSE (Saunders & Lewis, 2018).

4.4 Research Approach

In navigating the terrain of the JSE, where the dynamics between ETFs and Actively Managed Funds are charged with nuances, the selection of our research approach has been pivotal. We have anchored our methodology in the inductive approach, enriched further by incorporating deductive elements, ensuring a more comprehensive grasp of the topic.

An inductive approach, as characterised by Almalki (2016), is inherently a bottom-up process. True to this essence, our investigation commences from the granular examination of raw data sourced from the JSE and the Market. Employing descriptive statistics, Sharpe ratios and paired sample t-tests, this expansive data analysis guides us from detailed observations to formulating comprehensive theories about the ETF and Active investment landscape.

In recognising the depth and breadth of the JSE's dynamics, it is appreciated that relying solely on induction may leave some theoretical nuances underexplored. Therefore, we weave in deductive elements to enrich our findings. By juxtaposing these real-time data insights with existing theories and literature – we aim to bolster the theoretical framework generated from our observations.

Saunders Lewis (2018) described this journey as moving from specific data patterns to broader theoretical postulations. In embodying this spirit, our research approach was not just an exploration of the ETF and Actively Managed Fund landscape on the JSE but also a contribution to the broader academic and practical discourse on the subject. This synthesis of induction and deduction ensures that our study's findings are grounded in empirical reality while being intellectually rigorous and theoretically enriched.

4.5 Methodological Choice

The chosen methodological approach primarily leans towards a quantitative lens. The emphasis on a quantitative methodology provides an opportunity to investigate the historical patterns governing ETFs meticulously and Actively Managed Fund returns. Drawing insights from Agarwal et al. (2018) on the unique challenges presented by emerging markets and Kosowski et al. (2016) regarding the dynamics of less developed markets, a data-driven approach allows for rigorous scrutiny of these historical trajectories. Contemporary theoretical frameworks on ETFs will complement this numerically grounded exploration and Actively Managed Fund returns, offering a comprehensive, multi-dimensional viewpoint (Agarwal et al., 2018; Kosowski et al., 2016).

As we sifted through extensive reservoirs of data, an inductive lens was employed to craft a detailed theory that captures the essence of ETF constructs and their returns compared to Actively Managed Funds. Insights from scholars like Barberis and Thaler (2003) on behavioural finance and its impact on fund management further informed our deductive overlay. Works such as those by Fama and French (1993) provide a backdrop against which we juxtapose our empirical findings (Fama & French, 1993). Consequently, our methodological choice presented a harmonious blend of quantitative creativity and deductive validation.

4.6 Research Design

The research design exhibited flexibility, comprehensiveness, and a rigorous foundation in empirical data. Almalki (2016) underscores the importance of meticulously aligning the research design with data availability, research resources, and temporal constraints, a principle central to our approach.

Longitudinal Study: Embarking on a longitudinal study, the analysis chronologically mapped the trajectory of ETF prices, offering a temporal lens spanning from days to years. Insights from scholars like Agarwal et al. (2018) regarding the unique volatility contours of emerging markets emphasise the significance of understanding temporal ETF price fluctuations. By the recommendations of Saunders and Lewis (2018), this analytical approach gave insights into evolving patterns, trends, and the myriad factors shaping ETF and active funds returns. Such a perspective provided a robust framework to examine consistent observations made by scholars such as Kosowski et al. (2016) concerning the performance dynamics of the JSE.

Cross-Sectional Study: Beyond the confines of time, a cross-sectional exploration offered a snapshot of the ETF landscape at a specific temporal juncture. By capturing data from diverse ETFs, the focus shifted towards understanding the interplay between various parameters—asset class, risk adjustment and expense ratio—and their impact on returns. While shedding light on the nuances of individual ETF returns, this methodology may not capture the holistic dynamics of cumulative returns, a viewpoint mirrored by Saunders and Lewis (2018).

Quasi-Experimental Design: Extending further into the realm of investigation, a quasi-experimental design allowed for the juxtaposition of different ETF cohorts, distinguished by explicit attributes such as the competition between actively managed unit trusts and passive ETFs. Given insights from researchers like Blitz and Swinkels (2008) about the inherent allure of outperformance in active funds, this approach was instrumental. By facilitating a comparative lens, we assessed the effectiveness of diverse investment strategies and pinpointed fund characteristics that enhance overall returns (Blitz & Swinkels, 2008).

4.7 Time Horizon

With foundations rooted in the longitudinal study paradigm, our focus chronicled the ebb and flow of ETF and managed fund returns over a long-time horizon. This trajectory, underscored by Saunders and Lewis (2018) invites a deeper immersion into the time-woven intricacies of market performances.

Complementing this time-stretched analysis, a cross-sectional foray offered a snapshot – a temporal freeze that captures the stock returns at a specific juncture, like during the global economic crisis of 2008. According to Saunders and Lewis

(2018), such an approach affords a simultaneous examination of multiple ETFs, reflecting the interplay of variables and their confluence on returns.

The primary focus of the research lies in the longitudinal lens, which is driven by the observations made by scholars such as Agarwal et al. (2018) and the insights into volatility contours highlighted by Kosowski et al. (2016) about emerging markets. A longitudinal perspective is not just a choice but imperative in this context. This approach facilitated a dynamic understanding of shifts, ebbs, and surges, allowing us to map the performance metrics and underlying causal narratives. In essence, the chosen time horizon, interwoven with our methodological choices, ensured that our research had a Multifaceted narrative—a story that unveils the past, contextualises the present and anticipates the future of ETFs and managed funds on the JSE.

4.8 Proposed Research Methodology

Grounded in the intellectual confluence of contemporary literature and empirical pursuit, the proposed research methodology champions a quantitative paradigm meticulously calibrated to decipher the numerical dynamics of ETFs and Actively Managed Funds. This quantitative exploration does not merely revolve around detached numerical churnings; it is intrinsically anchored to the lived experiences and discernments of critical stakeholders—the JSE data users and the market participants. These actors, whether as proactive agents shaping the market or astute observers monitoring the tapestry of price action on the JSE, breathe life into the numbers, infusing them with context and significance.

Integral to the research design, as expounded by Saunders and Lewis (2018), is the fidelity to a singular yet profound data collection approach—detailed scrutiny of secondary data chronicling ETFs' price trajectories spanning extensive temporal horizons. By juxtaposing raw and synthesised data, such augmentation amplifies the analytical depth and fortifies the research with multi-dimensional perspectives, ensuring a robust, comprehensive, and researched understanding of the ETFs and Managed Funds landscape on the JSE.

4.9 Population

The population utilised in this research was ETFs actively traded on the JSE and sector-level Actively Managed Funds accessible in South Africa. This includes all

ETFs and sector-level Unit Trusts available for trading by investors and has sufficient historical data to allow for meaningful review. In the absence of actual ETF data, ETFs were used as a proxy to provide a benchmark for evaluating the returns of ETFs and Actively Managed Funds. All ETFs and sector-level unit trusts that did not have data older than ten years were excluded. Further exclusions were included where the comparative pairs did not have matching data timelines.

While it may be tempting to focus on other subsets of ETFs and Funds, this could introduce biases into the study and limit the generalizability of the findings. Considering the available population of ETFs with sufficient historical data, the aim is to obtain a more comprehensive understanding of total returns and their contributing factors.

It is also important to note that the population of actively traded ETFs and Unit Trusts is constantly evolving as new funds are introduced and older ones are delisted. The research ensured that the study captured the most up-to-date information on the fund population under consideration. Additionally, consideration was given to creating pairs of the population that are discussed for deeper analysis.

4.10 Unit of Analysis

The unit of analysis was the total returns of ETFs and Actively Managed Funds, with sector-level Unit Trusts as the proxy. The analysis focused on the returns over a 10- and 15-year time horizon and aimed to explain the performance differential between the two asset classes.

4.11 Sampling Method Size

Cluster sampling was utilised to select the funds to be studied. Cluster sampling is a technique that separates the population into different groups, and then a sample of clusters is selected for inclusion in the study (Babin & Zikmund, 2015). The population under consideration is ETFs listed on the JSE and Unit Trusts available to South African investors with historical data that is ten years or older. Once the funds are selected, a total population of the time series of price changes is analysed (Saunders & Lewis, 2018).

4.12 Data Gathering Process

This research primarily used secondary data on ETFs from the JSE and sector-level Unit Trusts as compiled by Profile Group and other Public Sources. I have access to this data, as provided in Appendix B.

4.13 Analysis Approach

The data analysis took the following approach:

- Data Preparation: Sanitise the data before beginning the analysis. This entailed validating the data's completeness, checking for missing values, and managing outliers or dissonant data (Sheard, 2018).
- Descriptive Statistics: This was used to summarise and describe the primary characteristics of the data. This included measures of central tendency such as mean and variability like standard deviation (Fisher & Marshall, 2009).
- Inferential Statistics: This was used to make statistical conclusions about a population based on a sample of data. This includes techniques like paired samples t-tests, Sharpe ratios and confidence intervals.
- Data Visualization: This is used to explore and communicate the findings using visual depictions. The visualisations include graphs and charts to help draw attention to relationships or patterns in the data (Gatto, 2015).
- Reporting and Interpretation: Once the analysis is conducted, the findings are reported together with the interpretation of the results. This is in the form of a report detailing the analysis in a clear and concise manner and drawing conclusions based on the results of the research (Willig, 2014)

4.14 Quality Assurance

Several quality assurance considerations were taken into account when conducting the research. These include:

Sampling: The quality of the sample has a material influence on the quality of the research output (Zikmund et al., 2013). I ensured that the sample represents the ETF population I am interested in studying, and only the exclusion applied was based on data limitations. This aided in avoiding biases and ensuring the sample size was large enough to yield statistically significant results.

Data Collection: To ensure the quality of the data, I collected the data from a credible data aggregator, namely, Bloomberg.

Data Entry and Management: Errors can occur when data is entered into a computer or database. To avoid this, I conducted quality checks on the data and ensured it was managed and stored securely (Saunders & Lewis, 2018).

Data Analysis: The data analysis was conducted using appropriate statistical methods, and I ensured that the findings were replicable and generalisable (Saunders & Lewis, 2018).

Reporting: I am transparent about my research methods and will communicate the results when reporting the findings. This includes reporting any limitations or potential sources of bias in the study (Zikmund et al., 2013).

4.15 Limitations

The endeavour to dissect and understand the returns of ETFs and Actively Managed Funds is a task rife with challenges. A juxtaposition of these investment vehicles, deeply intertwined with the intricacies of market mechanics, naturally attracts potential caveats that must be transparently acknowledged. This research intends to elucidate the contrasts and confluences between ETFs and Actively Managed Funds. While it has been meticulously architected to do so, inherent limitations remain whose recognition is pivotal for a judicious interpretation of the findings.

A primary concern is the perfect matching of the pairs that are being compared. While the sectors being compared are similar, the weights within the Actively Managed Funds are not the same as ETFs, and they are not constant throughout because of the constant changes necessitated by active management. Notwithstanding, this forms the basis of the study because the changing weights lead to over or underperformance against ETFs. Another limitation, as underscored by Theofanidis Fountouki (2018), arises from the oscillations of market conditions. Much like their actively managed counterparts, ETF returns are hostages to a panoply of market determinants. Shocks in interest rates, shifts in economic policy, and other macroeconomic currents can considerably sway returns. The dataset might not mirror these market-induced fluctuations seamlessly, rendering a potential rift between observed patterns and actual market undercurrents. Equally salient is the

time window of the investigation. Theofanidis Fountouki (2018) has rightly noted that the temporal expanse of the study can sculpt the insights derived. While fleeting timeframes may blindside us to overarching trends, protracted spans grapple with the dynamism of ever-evolving market paradigms. This study, aware of this temporal challenge, is committed to deploying data across expansive durations, contingent upon their availability. Navigating these variables, though peripheral, is exigent due to their profound impact on market sentiment and returns. These uncertainties, while challenging, underscore the research study's commitment to a nuanced, comprehensive, and candid exploration.

5 Chapter Five

5.1 Finding/Results (Introduction)

This chapter delineates the results from the empirical evaluation concerning the performance comparison between Actively Managed Funds and the corresponding Exchange-Traded Funds (ETFs). An in-depth analysis was conducted to discern the differences and similarities in the return patterns and overall performance of these two investment options. To ensure the precision and accuracy of the findings, the reliability and validity of the employed measuring instruments will be elaborated upon within this segment.

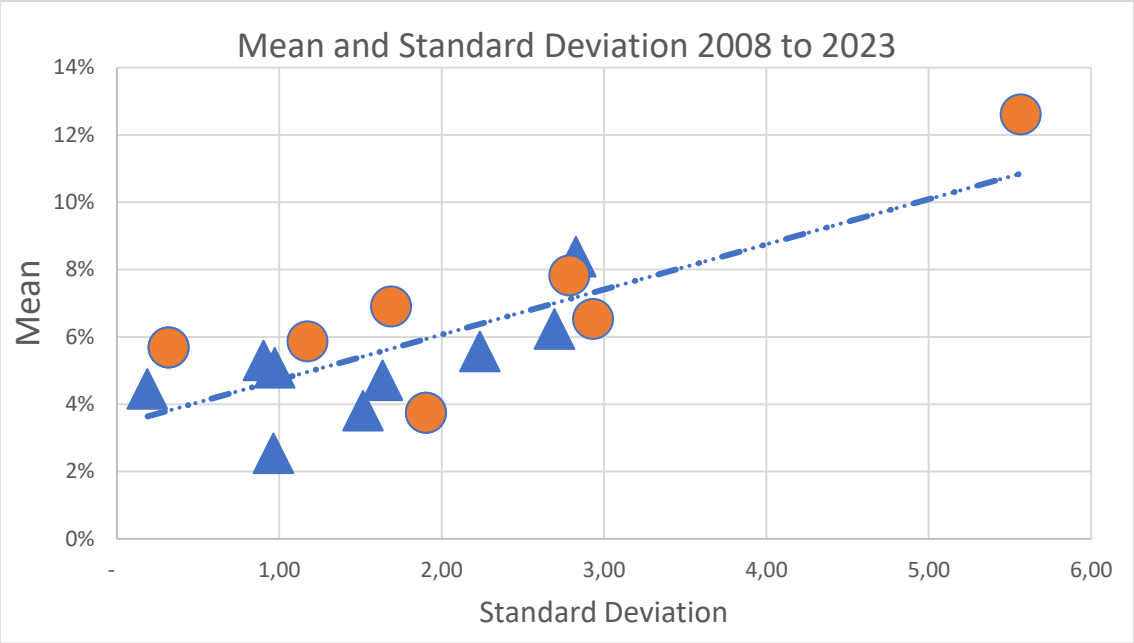
The outset of the chapter offers an exhaustive summary stemming from the descriptive statistics, which aptly characterise the collected sample data pertinent to the study. This ensures that the reader gains a holistic understanding of the foundational data underpinning the consequent analyses. Descriptive statistics were employed on the data, which were pivotal in comparing the means and standard deviations of the two investment sectors and ascertaining if there are observable differences in their performance.

Building on this, the data was further subjected to paired sample t-tests. This statistical approach was crucial to determine if any significant discrepancies exist between the performance metrics of the Actively Managed Funds and the ETFs over similar timeframes. Such a methodological choice ensured that the comparison remains unbiased and is rooted in empirical evidence.

5.2 Test Results and Observations

From the average statistics in the scatter plot in Figure 1 below, ETFs, denoted as ETFs, on average, outperformed the Actively Managed Funds shown as Actively Managed Funds. However, they also had outliers of more volatile sectors, as indicated by more significant standard deviations. The parallel movements in the Actively Managed Funds and ETFs hint at broader market influences affecting both similarly. Despite ETFs outperforming broadly for the entire period under review, it is not a consistent trend on daily data, as shown in the subsequent results.

Figure 1



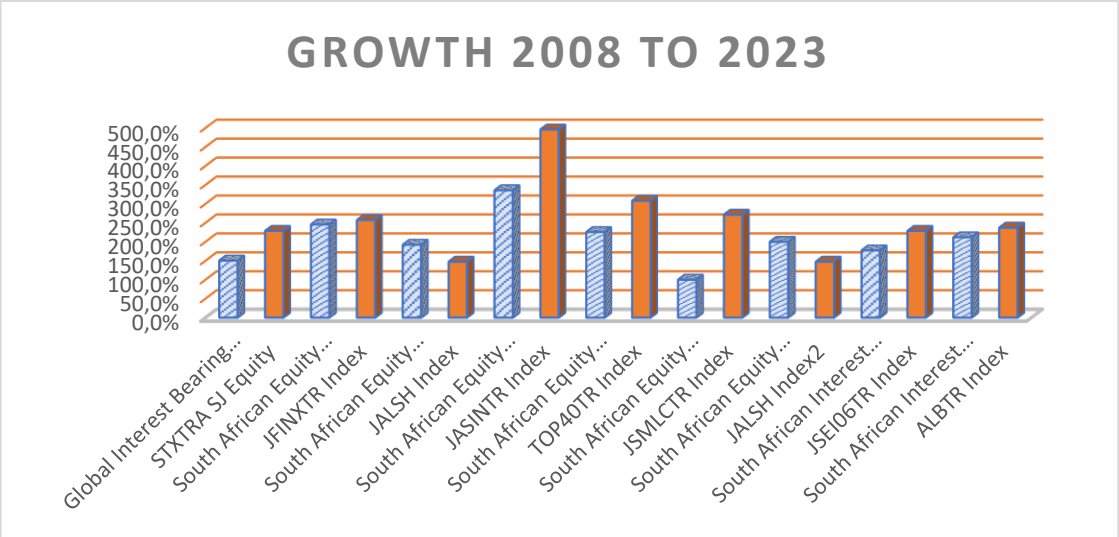
Mean and Standard Deviation Scatter Plot (Source: Analysed Data)

Unit Trust Sector TRI
(Actively Managed Funds)

JSE TRI
(ETFs)

The bar graph below (Figure 2), titled “GROWTH 2008 TO 2023,” represents the growth percentages of Actively Managed Funds and their corresponding ETFs over 15 years. The growth percentages for the displayed securities and indices range between 100% to slightly above 450%. The growth performance varies significantly among the securities and indices, indicating diverse returns and performances over time. For most pairs, there is a clear difference between the growth of the Actively managed investment and its corresponding ETF. This highlights the difference in returns or performance between the two. In most pairs, the ETF (indicated by striped bars) seems to perform better or is at par with its corresponding actively managed investment (indicated by solid coloured bars).

Figure 2



Growth Comparisons Between ETFs and Actively Manged Funds

Source: Analysed Data

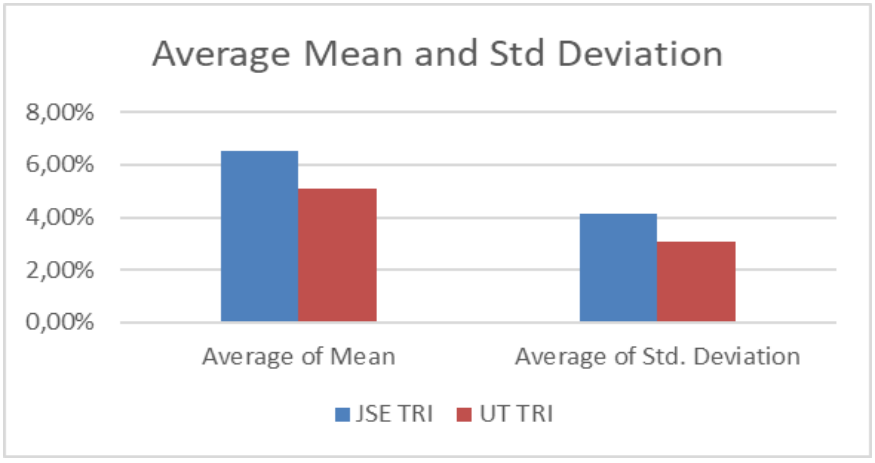
Actively Managed ETFs

While many pairs show the ETFs outperforming the Unit Trust TRIs (Actively Managed Funds), there are two instances where the actively managed investment significantly outperforms the corresponding ETF. On an aggregate level, the growth pattern over the 15 years from 2008 to 2023 indicates that while there are specific sectors where Actively Managed Funds have outperformed, the ETF tends to provide competitive or superior growth in the majority of categories.

5.3 A View of the Mean and Standard Deviation

Over the past decade and a half, spanning from 2008 to 2023, the two investment types presented a myriad of results, each with what seems to be unique influences. Reviewing the standard deviations, as detailed in the table below (Figure 3), it is evident that these investment channels offer distinct outcomes.

Figure 3



Average Mean and Standard Deviation (Source: Analysed Data)

ETFs

Actively managed funds

The Standard Deviation has been rescaled to fit.

The Mean return, which indicates the average performance over a given timeframe, presents a consistent narrative. The mean return hovers around 5.38% for the actively managed category, implying a decent appreciation over the observed period. Juxtaposing this with the ETF's mean return, which averages 6.21%, one notices the slightly enhanced performance in the latter category. These returns, especially from the ETF, reflect better performance, drawing attention to what could be causing it.

The Standard Deviation, which often sheds light on the risk or volatility associated with an investment, could suggest a nuance. For the actively managed investments, there is an average standard deviation of 1.42, which could indicate an element of lower volatility in returns if looked at in isolation. This could be suggestive of investments that have seen returns that are potentially less risky. In contrast, ETF securities exhibit a slightly higher average standard deviation of 1.98, pointing towards more variability in returns. Such a profile may suggest a higher risk level, but this only applies in isolation.

A look at the spread of Returns showed that ETFs had a more comprehensive range of returns, further supporting the view of higher volatility compared to the Actively

Managed Funds. While the exact performance percentages varied, the Actively Managed Funds' overall direction (positive or negative) often mirrored their corresponding ETFs, suggesting that broader market forces often affected both similarly. Based on the data reviewed, there are significantly more instances where the ETFs outperform their actively managed counterparts. However, it is also worth noting that in the short term, there are instances where Actively Managed Funds outperform the ETFs. So, while there is a general overperformance of the ETFs in the long term, it is not a consistent pattern in the shorter periods.

A look through the individual Means and Standard deviations in Figure 4 below reveals a consistent picture of the ETFs outperforming the Actively Managed Funds in the long run, except the FTSE JSE All Share Index Total Return Value, which we review later in more detail.

Figure 4

2008 to 2013 Data

Name	Name	Std. Deviation	Mean
Global Interest Bearing Short Term	UT TRI	1,52	3,80%
SATRIX TRACI 3 MONTH ETF	JSE TRI	0,32	5,68%
South African Equity Financial	UT TRI	2,70	6,23%
FTSE/JSE Financials Index ZAR TR	JSE TRI	2,93	6,53%
South African Equity General	UT TRI	1,64	4,71%
FTSE JSE All Share Index Total Return Value	JSE TRI	1,90	3,74%
South African Equity Industrial	UT TRI	2,83	8,38%
FTSE/JSE Africa All Share Industrials Total Return Index	JSE TRI	5,57	12,60%
South African Equity Large Cap	UT TRI	2,24	5,56%
JSE Top 40 Index Total Return Value	JSE TRI	2,79	7,82%
South African Equity Mid and Small Cap	UT TRI	0,97	2,54%
FTSE/JSE Africa Small Cap Total Return Index	JSE TRI	1,69	6,89%
South African Equity Unclassified	UT TRI	0,97	5,08%
FTSE JSE All Share Index Total Return Value	JSE TRI	1,90	3,74%
South African Interest Bearing Short Term	UT TRI	0,19	4,45%
FTSE/JSE BD PRFRM 1-3Y TR	JSE TRI	0,32	5,68%
South African Interest Bearing Variable Term	UT TRI	0,90	5,30%
FTSE/JSE ALBI Total Return Index	JSE TRI	1,18	5,86%

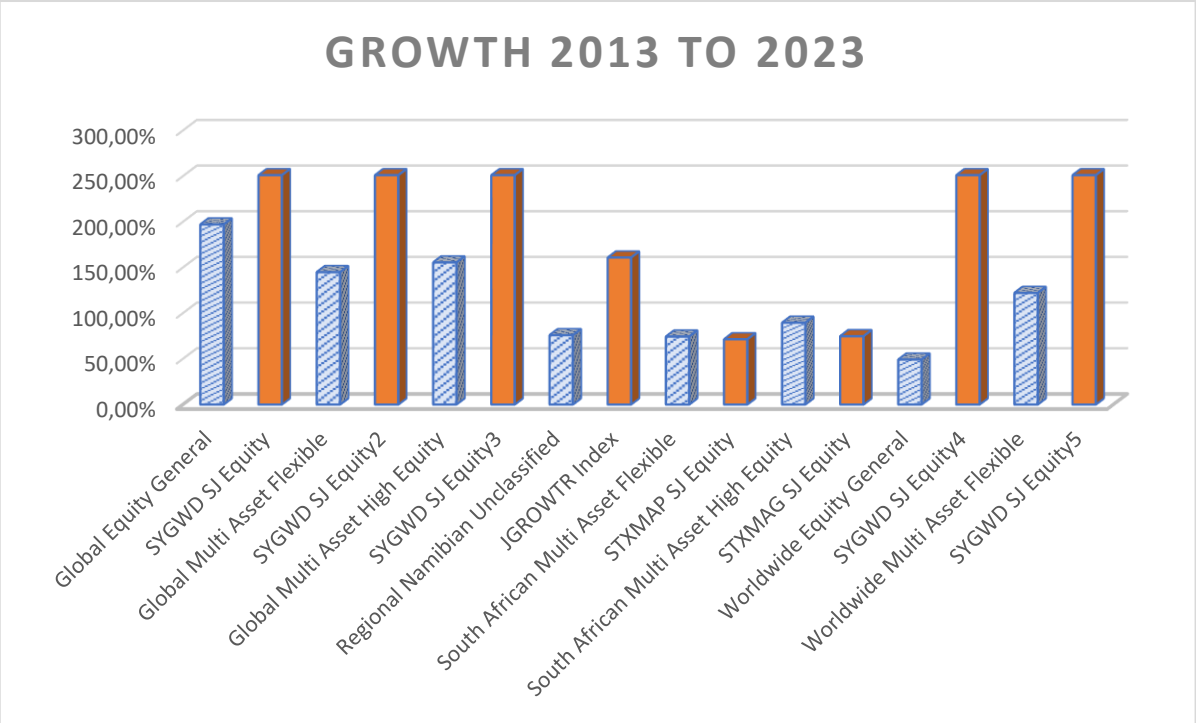
UT TRI (Actively Managed Funds)

JSE TRI (ETFs)

5.4 Results from the 2013 to 2023 Data Set

The bar graph below (Figure 5), titled "GROWTH 2013 TO 2023," summarises the growth percentages of Actively Managed Funds juxtaposed with their corresponding ETFs over a decade. It is important to note that this data set only has a ten-year duty to availability.

Figure 5



Growth Comparison between ETFs and Actively Managed Funds

Source: Analysed data

Figure 5 shows that growth percentages span from 49% to just under 250%. As with the previous data set from 2008 to 2023, there is a notable diversity in growth rates among the securities and indices, emphasising different returns and performances. The disparity between the growth of the actively managed investments and their ETF counterparts remains evident, showcasing their respective performances even in this different data set and over a relatively shorter period. As seen previously, the ETF outperforms or rivals its corresponding actively managed investment in several pairs. This consistent pattern over both periods may suggest inherent strengths or advantages associated with ETFs. Sectors such as “South African High Equity” and “Regional Multi Asset Flexible” display the Actively managed investment leading over the ETF. However, the difference is not as pronounced.

Comparing the two periods that have been reviewed, “GROWTH 2008 TO 2023 and Growth 2013 to 2023,” there are evident similarities in the performance dynamics. In both data, the ETF outperformed or kept pace with the Unit Trust securities for most sectors, except for the FTSE JSE All Share Index Total Return Value. This near consistency over two different time frames suggests a broader trend in the relative performance of ETF compared to Unit Trust securities.

However, the performance is not consistent across the years. In specific years, the Actively Managed Funds have seen significant drops or gains, and the same can be observed for the ETFs. However, when considering the aggregates (as indicated by the Grand Tot), the ETFs appear to have a more robust performance. Based on the data presented, the high-level view that ETFs outperform Actively Managed Funds holds in many observable instances. While individual years might present anomalies, the cumulative performance over the years generally favours ETFs.

5.4.1 Mean and Standard Deviations

Again, the second data set spanning 2013 to 2023 paints a similar picture as the 2008 to 2013 data, albeit with different nuances. Examining the various securities under the two primary categories reveals distinct patterns. Again, the analysis is based on the individual and aggregated Standard Deviation and Mean return, which provide insights into the volatility and performance of these investments, respectively.

Figure 6

Code	Average of Mean	Average of Std. Deviation
JSE TRI	8,22%	2,8339
UT TRI	4,62%	0,9436

Comparison of aggregated Means and Standard Deviations

JSE TRI = ETFs UT TRI = Actively Managed Funds

The Mean return, as shown in Figure 6 for actively managed securities averaged 4.58%. This suggests that investments in this category yielded a moderate profit over the decade in review. Conversely, the ETF’s average return stood prominently at

7.49%, potentially marking it as a better-performing category over the same timeframe, albeit possibly accompanied by higher volatility, as evidenced by its higher standard deviation.

A look at the standard deviation, a measure of the volatility or dispersion of returns, the actively managed securities demonstrated an average standard deviation of 0.944. This average suggests that the returns of the securities under the actively managed category had a moderate level of variability from their mean return. On the other hand, the ETF securities averaged a considerably higher standard deviation of 2.821, indicating a broader range of returns and possibly reflecting higher inherent risks or diversification in the underlying assets.

Figure 7

Security Name	Code	Std. Deviation	Mean
Global Equity General	UT TRI	1,927	7,79%
SYGNIA ITRIX MSCI WORLD IDX	JSE TRI	2,481	10,22%
Global Multi Asset Flexible	UT TRI	1,500	5,65%
SYGNIA ITRIX MSCI WORLD IDX	JSE TRI	2,481	10,22%
Global Multi Asset High Equity	UT TRI	1,654	6,25%
SYGNIA ITRIX MSCI WORLD IDX	JSE TRI	2,481	10,22%
Regional Namibian Unclassified	UT TRI	0,329	2,97%
FTSE/JSE AFRICA GROWTH IX Total Return	JSE TRI	2,269	6,48%
South African Multi Asset Flexible	UT TRI	0,160	4,02%
SATRIX MULTI ASSET PPSP ETF	JSE TRI	1,490	5,05%
South African Multi Asset High Equity	UT TRI	0,670	3,54%
SATRIX MULTI ASSET PPSG ETF	JSE TRI	6,505	3,08%
Worldwide Equity General	UT TRI	0,359	1,96%
SYGNIA ITRIX MSCI WORLD IDX	JSE TRI	2,481	10,22%
Worldwide Multi Asset Flexible	UT TRI	0,951	4,82%
SYGNIA ITRIX MSCI WORLD IDX	JSE TRI	2,481	10,22%

Sector level Means and Standard Deviations (2013 to 2023 data)

Source: Analysed Data

Figure 7 shows the pronounced dichotomy between Actively Managed Funds and ETFs. While actively managed securities might appeal to investors looking for steadier, more predictable returns with lesser variability, the ETF appears more suited for those willing to embrace higher risks for potentially more significant rewards in the long run. This distinction underscores the importance of aligning investment choices with individual risk appetites and financial objectives.

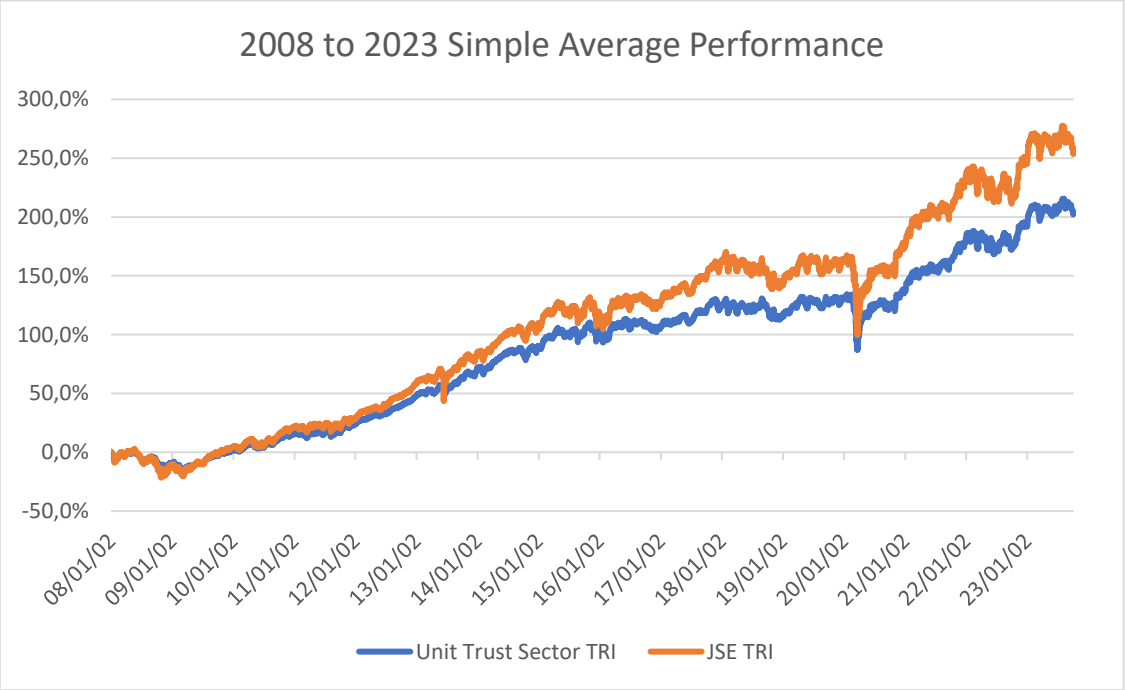
5.4.2 Aggregated Observations from Both Data Sets

On Aggregate, the observations show that in most comparisons, the ETFs have outperformed the respective Actively Managed Funds over the entire period. This supports the view that ETFs outperform Actively Managed Funds over the long term. The overperformance of ETFs can be gauged by comparing the performance across different periods to show the long-term and short-term performance. For this purpose, we only focus our observations on the 2008 to 2023 data that offers a longer time horizon.

5.5 Aggregated Long-Term Performance

Figure 8 below shows the aggregated simple average performance from 2008 to 2023. The period totals provide a cumulative performance for the entire period, which can be considered a long-term performance observation. The ETF consolidated view has outperformed the Actively Managed Funds for the aggregated returns over the entire period. This indicates that the ETFs have been consistently outperforming over the long term.

Figure 8



Simple Average Performance 2008 to 2023

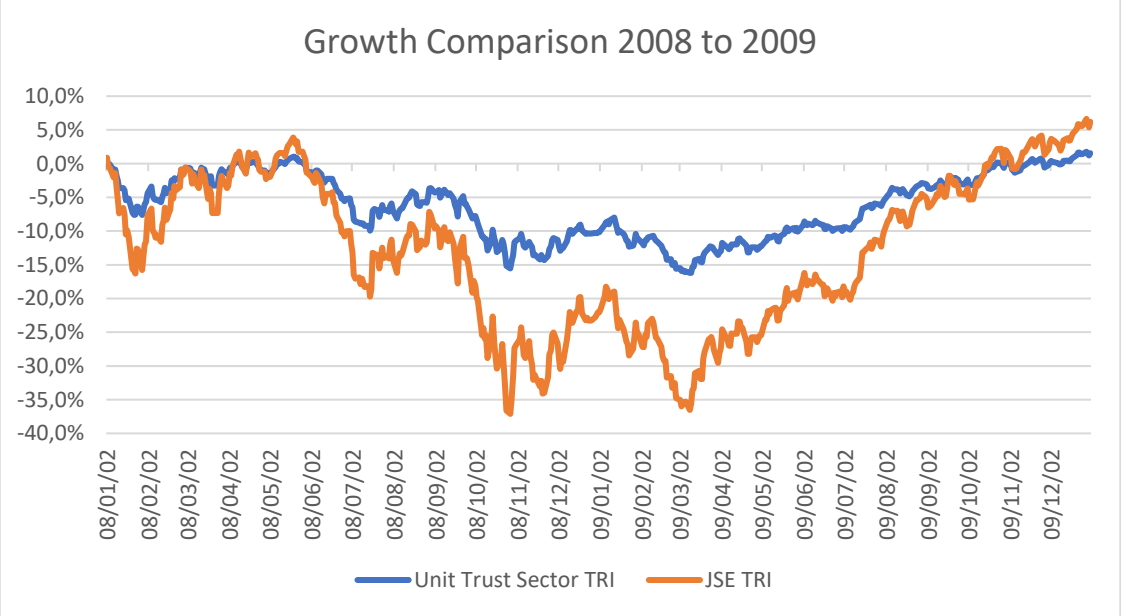
Source: Analysed data

As seen in figure 7, from 2008 to 2023, the ETF and the Actively Managed Funds showed notable growth trajectories. Starting at the same base level in 2008, the Actively Managed Funds displayed long-term growth, almost tripling its initial value by 2023. This translates to an approximate 200% increase from its starting point. The ETF, on the other hand, exhibited a consistently higher growth pattern over the same period. By 2023, its growth, at 254%, is materially higher than the Actively Managed Funds. Over the 15 years, it is clear that both indices demonstrated growth, with the ETF outperforming the Actively Managed Funds in terms of end-level returns.

5.6 A Closer Look at the Performance

In the early stages, the Actively Managed Funds perform marginally better than the ETF. It is important to note that this was during the global economic crisis, and this disparity in performance could be explained by the stress that was present at the time. A closer look at Figure 9, which provides performance over a shorter horizon, it is clear that the Actively Managed Funds are resilient during this turbulent period, possibly due to active management of the portfolio, which buffers against market shocks. The ETF, on the other hand, being more directly exposed, is reacting to the full effect of market fluctuations.

Figure 9



Growth Comparison 2008 to 2009

Source: Analysed Data

The ETFs' poor performance and higher volatility relative to the Actively Managed Funds were evident during the 2015 South African financial crisis when the Minister of Finance was fired. The pronounced volatility in the ETF during this period is hard to miss. While the Actively Managed Funds continue the relatively steady climb, the ETF witnesses more dramatic peaks and troughs. The sharp descent of the ETF in 2016, drawing it close to the Actively Managed Funds, underscores the potential vulnerabilities of the ETF to certain market events or sentiments, as opposed to the buffered nature of the Unit Trusts.

The ETF outperforms the Actively Managed Funds as the market recovers. This outperformance suggests that when the market normalises (non-stress periods, the ETF, perhaps due to its direct exposure, captures the uptrends more aggressively than its actively managed counterpart.

5.6.1 Post-Dip Dynamics (2019 to 2021)

After the 2018 dip, the Actively Managed Funds adopted a consistent growth trajectory, reflecting its inherent stability. In contrast, the ETF exhibits frequent and more pronounced fluctuations while also on an upward trend. This suggests that the ETF, being unmanaged, takes on many shocks.

5.6.2 Converging Paths

In the latter part of the observation, there is an evident convergence between the two groups. However, with a higher pace, the ETF's decreasing volatility and its path or trend gravitating towards the Actively Managed Funds stands out. This suggests a potential alignment in market sentiment or strategy that affects both indices similarly, yet, notably, the ETF's journey to this convergence was much more tumultuous. The contrast between the ETF and the Actively Managed Funds is a tale of managed and unmanaged funds. The ETF, with its heightened sensitivity to market movements, offers periods of remarkable growth but also showcases susceptibility to sharper downturns. Meanwhile, the Actively Managed Funds, possibly backed by active management and portfolio switching, demonstrate stability benefits, often acting as a steadying force amidst market chaos.

5.7 Duration of Over or Underperformance

To ascertain how long the overperformance of ETFs has been ongoing, we look at the historical performance data for periods split between short-term, medium-term and long-term. If the ETFs have consistently outperformed the Actively Managed Funds across all these periods, it can be inferred that the overperformance trend has been consistent and prolonged. Short-term performance provides insights into recent trends and can be influenced by factors like market news, global events, or economic policies. While short-term performance might show volatility, it is essential to understand it in the context of long-term trends to make informed investment decisions. Medium and Long-term performance provides a better view of the investment's potential and ability to withstand market fluctuations and uncertainties. It reflects the consistent performance and strength of the investment over time. Performance outcomes over the three periods can inform the best investment options based on the intended duration.

It is evident from the current data, from 2008 to 2023 and 2013 to 2023, that ETFs have shown consistent overperformance over the long-term periods. Compared to Actively Managed Funds, it remains susceptible to short-term fluctuations and market shocks, as demonstrated by the global economic crisis of 2008, the South African crisis of 2015 and COVID-19 as the latest.

5.8 A Focus on the JALSH Index and South African Equity General

In 2008, the JALSH Index (ETF) showed a return of -25.7%, while the corresponding Actively Managed Funds had a return of -22.8%. This indicates an underperformance of the JALSH Index by 2.9%. In 2011, the JALSH Index had a return of -0.5%, whereas the Actively Managed Funds had a return of 4.0%, leading to an underperformance of 4.5% by the JALSH Index. In 2016, the JALSH Index marginally underperformed with a return of -0.1% compared to the 5.6% return of the Actively Managed Fund, a difference of 5.7%. In 2022, the JALSH Index recorded a negative return of -2.3%, while the Actively Managed Fund showed a positive return of 8.4%, leading to an underperformance of 10.7% by the JALSH Index. In 2023, the JALSH Index continued its underperformance trend, returning -4.8% compared to the favourable 35% return by the Actively Managed Funds, a significant difference of 39.8%.

Figure 10 shows that the South African Equity General faced a steep decline initially from 2008, dropping below the starting value and indicating negative returns. By 2010, it had started a recovery but was still below its inception point by 2011. In contrast, the FTSE JSE All Share Index Total Return Value had a more stable trajectory, although it dipped slightly below the starting point during this period.

Figure 10

Figure 10 shows that In the medium term (3-10 years, 2011-2018), the South African Equity General showed a consistent growth pattern from 2011 onwards, peaking around 2017, at which point it had almost doubled its value from the 2008 starting point. The FTSE JSE All Share Index Total Return Value also displayed an upward trend but experienced a more volatile path than the South African Equity General. Despite its fluctuations, the FTSE JSE All Share Index Total Return Value continued to grow but at a consistently slower pace if the short-term fluctuations were discounted.

Post-2018, the South African Equity General experienced a slight dip but soon recovered and maintained a stable growth trajectory until 2023. By the end of this period, it hovered around the 150% mark, indicating a 1.5x growth from its 2008 start. The FTSE JSE All Share Index Total Return Value had a more volatile recovery. It faced a sharp decline post-2018, dipping close to the 2013 value, before recovering. As of 2023, it continues to parallel the South African Equity General but at a slower pace and significantly heightened dips in comparison.

Over multiple years, the JALSH Index has consistently underperformed compared to its respective actively managed benchmark. The reasons behind this consistent underperformance could vary, ranging from market conditions, portfolio constructs and weights. It would be beneficial to delve deeper into each index's composition and strategies to understand the underlying causes of the noted underperformance and the complete divergence from the results of the other pairs that have been studied.

5.9 Paired Comparisons Using Daily Data

Figure 11

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Global Interest Bearing Short Term	,00039409	3929	,015181426	,000242199
	SATRIX TRACI 3 MONTH ETF	,00056427	3929	,003249273	,000051838
Pair 2	South African Equity Financial	,00062325	3941	,026963325	,000429507
	FTSE/JSE Financials Index ZAR TR	,00065265	3941	,029349320	,000467514
Pair 3	South African Equity General	,00048741	3941	,016650818	,000265236
	FTSE JSE All Share Index Total Return Value	,00037419	3941	,019046650	,000303400
Pair 4	South African Equity Industrial	,00083575	3938	,028531730	,000454664
	FTSE/JSE Africa All Share Industrials Total Return Index	,00125992	3938	,055674817	,000887199
Pair 5	South African Equity Large Cap	,00057214	3941	,022690666	,000361447
	JSE Top 40 Index Total Return Value	,00078207	3941	,027882727	,000444152
Pair 6	South African Equity Mid and Small Cap	,00025025	3938	,009654462	,000153847
	FTSE/JSE Africa Small Cap Total Return Index	,00068921	3938	,016904810	,000269384
Pair 7	South African Equity Unclassified	,00050828	3934	,009729338	,000155119
	FTSE JSE All Share Index Total Return Value	,00037701	3934	,019050892	,000303737
Pair 8	South African Interest Bearing Short Term	,00044447	3958	,001893272	,000030094
	FTSE/JSE BD PRFRM 1-3Y TR	,00056544	3958	,003237571	,000051461
Pair 9	South African Interest Bearing Variable Term	,00053201	3973	,009053466	,000143633
	FTSE/JSE ALBI Total Return Index	,00057995	3973	,011872164	,000188352

Paired Samples Statistics

Source: SPSS Analysis of Collected Data

The Mean, which represents the average difference between paired observations, shows a higher mean for all the ETFs except the FTSE/JSE All Share Index Total Return value. For instance, the FTSE/JSE Financial Index ZAR TR has a daily Mean of 0.65% compared to 0.62% for its counterpart—South Africa Equity Financial. The higher positive value for the FTSE/JSE Financial Index ZAR TR indicates a better performance over the observed period.

Standard Deviation (Std. Deviation) indicates higher ETF set variability than the Unit Trust sector. Out of the nine pairs, eight of the ETFs have higher variability, except for the Global Interest-Bearing short-term. This provides insight into the dispersion or spread of the paired differences from the mean difference. The larger the Std. Deviation, the higher the variability of daily prices.

Standard Error of Mean: This measures the precision of the estimated mean of the paired difference. Smaller values imply that the estimated mean is relatively close to the population mean. The mean of these differences tells us whether one tends to be larger or smaller than the other and by how much on average. The Std. Deviation and standard error provide context for how consistent these differences are across the dataset and how precisely the mean difference is known.

Figure 12

Paired Samples Test

		Paired Differences					t	df	Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			One-Sided p	Two-Sided p
Pair 1	Global Interest Bearing Short Term - SATRIX TRACI 3 MONTH ETF	-,000170183	,016786649	,000267808	-,000695238	,000354872	-,635	3928	,263	,525
Pair 2	South African Equity Financial - FTSE/JSE Financials Index ZAR TR	-,000029401	,012313270	,000196142	-,000413950	,000355148	-,150	3940	,440	,881
Pair 3	South African Equity General - FTSE JSE All Share Index Total Return Value	,000113215	,009081611	,000144664	-,000170408	,000396838	,783	3940	,217	,434
Pair 4	South African Equity Industrial - FTSE/JSE Africa All Share Industrials Total Return Index	-,000424170	,042430655	,000676148	-,001749803	,000901464	-,627	3937	,265	,530
Pair 5	South African Equity Large Cap - JSE Top 40 Index Total Return Value	-,000209929	,007607356	,000121180	-,000447510	,000027652	-1,732	3940	,042	,083
Pair 6	South African Equity Mid and Small Cap - FTSE/JSE Africa Small Cap Total Return Index	-,000438961	,011501152	,000183275	-,000798284	-,000079638	-2,395	3937	,008	,017
Pair 7	South African Equity Unclassified - FTSE JSE All Share Index Total Return Value	,000131263	,020767813	,000331111	-,000517902	,000780429	,396	3933	,346	,692
Pair 8	South African Interest Bearing Short Term - FTSE/JSE BD PRFRM 1-3Y TR	-,000120968	,003467469	,000055116	-,000229025	-,000012910	-2,195	3957	,014	,028
Pair 9	South African Interest Bearing Variable Term - FTSE/JSE ALBI Total Return Index	-,000047941	,005134397	,000081457	-,000207643	,000111761	-,589	3972	,278	,556

Paired Samples t-Tests

Source: SPSS Analysis of Collected Data

The table above represents results from paired sample t-tests, which compare the means of two related groups. The results are described below.

The mean differences range from negative to positive, suggesting no universal trend

where one group consistently outperforms the other daily. Instead, it appears to be a mix where the Unit Trust sector security performs better on some days, while on others, the ETF comes out on top. It is important to note that this is daily and not on an aggregated basis. It is also worth noting that these differences are minor in magnitude. This suggests that the overall performance difference between the two groups, on average, might not be practically significant, even if they are observably so.

Three of the nine pairs tested (Pairs 5, 6, and 8) have two-sided p-values less than the conventionally accepted threshold of 0.05. This indicates that the observed differences are likely not due to random chance for these three pairs. However, the other six pairs have p-values greater than 0.05, suggesting that the differences observed for them could have arisen from random variability rather than an actual difference in the population.

Confidence intervals indicate the range within which the population's mean difference might lie. When this range includes zero, it indicates a potential lack of difference. For several pairs, the confidence intervals span zero. This suggests that based on the data collected for these pairs, there is possibly no material difference between the Unit Trust sector security and the ETF in the larger population.

The Std. Deviations are relatively consistent across the pairs, suggesting a similar degree of variability in the differences between each set of paired observations. This is expected, considering they are within the same sectors.

5.9.1 Aggregated Results and Long-Term Comparisons

Averaging out the mean differences across all pairs would allow us to understand the overall trend and not just the daily comparisons. Using daily data and given the mix of positive and negative values, it is clear that neither group universally outperforms the other consistently. To better understand the impact over a more extended period, an aggregated approach was used to smooth out the daily volatility. This aggregated insight is crucial for investors or stakeholders considering an investment strategy dependent on time horizons. While there are areas (as indicated by the pairs with significant p-values) where one group might have a statistically significant edge over the other daily, the overall picture is one of variability but outperformance in the ETF.

Figure 13

Paired Samples Test

		Paired Differences					t	df	Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			One-Sided p	Two-Sided p
Pair 1	Global Interest Bearing Short Term - SATRIX TRACI 3 MONTH ETF	-4,900000000	22,790673531	5,697668383	-17,044292685	7,244292685	-,860	15	,202	,403
Pair 2	South African Equity Financial - FTSE/JSE Financials Index ZAR TR	-,725625000	6,630442890	1,657610722	-4,258738621	2,807488621	-,438	15	,334	,668
Pair 3	South African Equity General - FTSE JSE All Share Index Total Return Value	2,790000000	4,565265965	1,141316491	,357341483	5,222658517	2,445	15	,014	,027
Pair 4	South African Equity Industrial - FTSE/JSE Africa All Share Industrials Total Return Index	-10,013750000	17,937989436	4,484497359	-19,572229858	-,455270142	-2,233	15	,021	,041
Pair 5	South African Equity Large Cap - JSE Top 40 Index Total Return Value	-5,153750000	7,070868759	1,767717190	-8,921550001	-1,385949999	-2,915	15	,005	,011
Pair 6	South African Equity Mid and Small Cap - FTSE/JSE Africa Small Cap Total Return Index	-10,715625000	20,201028016	5,050257004	-21,479992996	,048742996	-2,122	15	,025	,051
Pair 7	South African Equity Unclassified - FTSE JSE All Share Index Total Return Value	3,279375000	20,189905553	5,047476388	-7,479066254	14,037816254	,650	15	,263	,526
Pair 8	South African Interest Bearing Short Term - FTSE/JSE BD PRFRM 1-3Y TR	-3,213125000	5,467639001	1,366909750	-6,126624166	-,299625834	-2,351	15	,016	,033
Pair 9	South African Interest Bearing Variable Term - FTSE/JSE ALBI Total Return Index	-1,593750000	2,564872641	,641218160	-2,960474156	-,227025844	-2,486	15	,013	,025

Paired Samples t-Tests

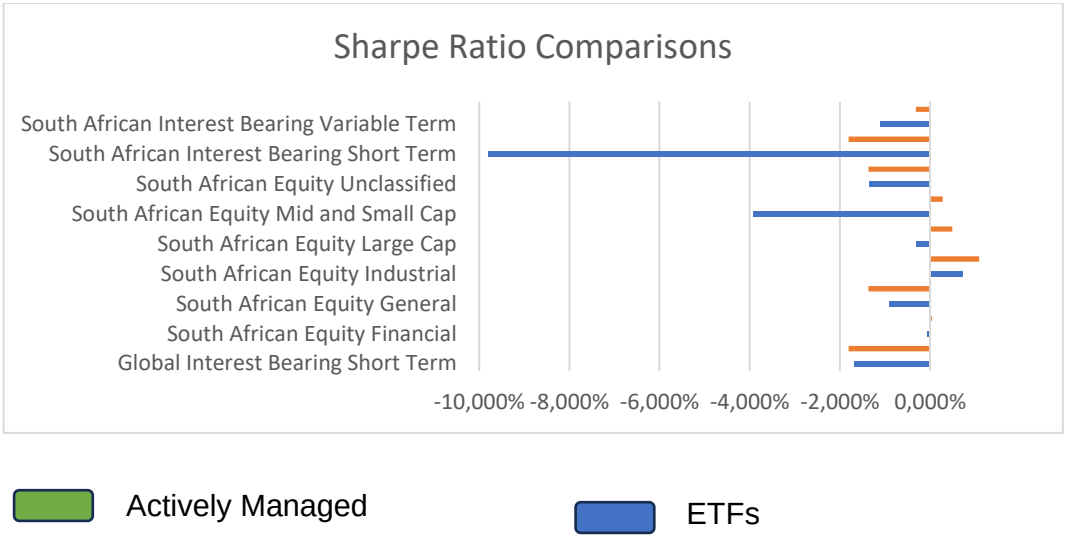
Source: SPSS Analysis of Collected Data

When the means are averaged, a slightly different picture emerges. Out of the nine pairs, five (Pairs 3, 4, 5, 6, and 8) exhibit two-sided p-values less than the conventionally accepted threshold of 0.05. This means that for these five pairs, there is a statistically significant difference between the two groups, and this difference is unlikely to be due to random chance. The remaining four pairs do not demonstrate statistical significance at the 0.05 level, suggesting that the observed differences could be due to random variability.

The t-values also give us insight into the magnitude and direction of the significance. Pairs with positive t-values (like Pair 3) suggest the Unit Trust sector security outperforms the ETF, whereas pairs with negative t-values (like Pair 4) indicate the opposite. The magnitude of the t-values (ignoring the sign) tells us about the strength of this significance. Higher absolute values imply a more robust result, showing a statistically significant difference between the two groups. While there are several instances where the ETFs statistically outperform the actively managed securities, the overall landscape is mixed. No universal trend of one group consistently outperforming the other is apparent, but the scale tips towards the ETFs.

5.9.2 Risk-Adjusted Returns

Figure 14



The Sharpe ratio is a renowned metric for assessing an investment's risk-adjusted performance, offering valuable insights into whether investors are adequately compensated for the level of risk they undertake. In the Johannesburg Stock Exchange (JSE) context, Sharpe ratios are instrumental in comparing the performance of the two groups being studied. This section delves into the key findings from the data and highlights the notable differences between these two groups of indexes.

Most Actively Managed Funds indexes exhibit negative Sharpe ratios, indicating that, on average, these indexes fail to outperform the risk-free rate. In other words, investors in these indexes are not adequately compensated for the risks associated with their investments. The lowest Sharpe ratio within this group registers at approximately --9.80 %. This substantial underperformance not only accentuates a lack of risk-adjusted returns but also raises questions about the viability of these indexes as investment options. Such extremely negative Sharpe ratios can cause concern for investors seeking favourable risk-adjusted returns.

In contrast to the predominantly negative Sharpe ratios within the Actively Managed Funds group, the ETF indexes present a more varied performance landscape. ETFs have positive and negative Sharpe ratios, indicating that risk-adjusted returns vary

across different market segments and sectors. Certain ETF indexes, such as “South African Equity Financial” and “South African Equity Industrial,” exhibit positive Sharpe ratios. These positive values signify that these indexes provide returns above the risk-free rate while assuming some level of risk. On average, investors in these segments are being adequately rewarded for the risks they undertake. Conversely, some ETF indexes, including “South African Equity Large Cap” and “South African Interest Bearing Short Term,” show negative Sharpe ratios. This implies underperformance relative to the risk-free rate and suggests that investments in these segments may not be optimal concerning risk-adjusted returns.

6 Chapter Six

6.1 Discussion of Results

The Exchange-Traded Fund (ETF) transformation has sparked extensive academic interest, leading to a body of literature exploring the multifaceted dimensions of ETFs and their implications on investment strategies, market dynamics, and investor behaviour. This study delved into this rich tapestry of research to provide a detailed analysis of ETFs vis-à-vis their actively managed counterparts while considering the broader context of performance persistence, investor biases and market efficiency.

The research covered a systematic literature review spanning theoretical frameworks and empirical evidence between ETFs and Actively Managed Funds. This included a review of the performance records of ETFs compared to Actively Managed Funds (Schizas, 2014; Sherrill et al., 2017). The research was overlayed with the influence of behavioural biases on investment decisions, as detailed by Bihari et al. (2022) and the impact of risk on returns.

Amid the ongoing debate over the efficiency of financial markets, this research also navigated the well-established Efficient Market Hypothesis (EMH) posited by Fama (1970) and the subsequent body of work by Fama and French (1993, 2010) to shed light on the ongoing discourse surrounding the active versus passive investment debate. Grounded in the hypothesis of luck versus skill, as expounded by Fama and French (2010), and the arithmetic of active management postulated by Sharpe (1991), this study scrutinises the persistent questions of whether active management can consistently outperform passive strategies, as reflected in the performance records of ETFs and Actively Managed Funds.

6.2 Long-Term Performance and Investment Strategies

The prominent finding of this study is the almost consistent overperformance of ETFs compared to Actively Managed Funds over the long term. This duration of outperformance, especially from 2008 to 2023, raises fundamental questions regarding active investment strategies and their effectiveness in delivering superior returns. The phenomenon of long-term outperformance by passive strategies aligns with the principles of the EMH (Fama, 1970). EMH posits that asset prices reflect all available information, making it challenging for investors to outperform the market

through active management consistently. The empirical observation of ETFs continuously outperforming Actively Managed Funds benchmarks over an extended period supports the notion that broad market exposure, as provided by passive indexes, can generate competitive long-term returns.

While the long-term performance of ETFs is remarkable, it is vital to acknowledge their susceptibility to short-term fluctuations and market shocks. The empirical evidence demonstrates that these passive indexes are not immune to the volatility and uncertainty that periodically grip financial markets. The results align with the view that even within the framework of EMH, short-term market inefficiencies and behavioural biases can influence asset prices (Malkiel, 2005). The observed overperformance of ETFs over the long term suggests that investors pursuing passive strategies may benefit from a risk-return trade-off. While they endure short-term fluctuations, passive investors may be rewarded with superior returns over extended investment horizons. This trade-off reflects the essence of modern portfolio theory (Markowitz, 1952), which advocates for diversification to optimise risk-adjusted returns.

The duration of overperformance by ETFs has several implications for investors and portfolio management. Investors with a long-term investment horizon may find passive strategies appealing, such as investing in broad market indexes like ETFs. The consistent outperformance over the long term aligns with a “buy-and-hold” strategy, where investors aim to capture the overall market’s growth. While passive strategies outperform over the long term, they are not immune to short-term market volatility. Investors should remain vigilant and consider their risk tolerance when navigating market shocks. The risk element highlights the importance of a diversified portfolio that balances passive and active strategies. The study’s findings encourage investors to assess their portfolio allocation and the role of passive investments within it. Passive investments can serve as a foundation for a well-structured portfolio, offering long-term growth potential.

6.3 The Material Exception to the Findings

The persistent underperformance of the Johannesburg All-Share Index (JALSH Index) relative to its corresponding Unit Trust Sector Total Return Index (TRI) benchmark during specific years and the long term is a vital observation that delved

into the complexities of index performance. This phenomenon sheds light on various factors influencing index behaviour and has significant implications for passive and active investors. While a detailed study needs to be done to understand this dislocation better, we offer some possible explanations.

One of the primary factors contributing to the underperformance of the JALSH Index can be attributed to market conditions and economic cycles. These periods can significantly impact index performance when diverging from historical trends. The EMH, a cornerstone theory in finance (Fama, 1970), posits that asset prices reflect all available information. For instance, the 2008 global economic crisis challenged the assumptions of market efficiency, leading to substantial market declines and prolonged economic uncertainties (Harvey & Liu, 2022). During this crisis, the JALSH Index faced substantial underperformance compared to its actively managed benchmark. This deviation from market efficiency highlights the vulnerability of passive indices to exceptional market conditions. During economic crises or market disruptions, asset prices can deviate significantly from their fundamental values, impacting the performance of passive indices. It can also be seen from the test results that the lack of a buffer offered by active management market shocks significantly impacts returns, and the Indexed fund has to play catchup after that. The buffer effect, however, does not explain how other measured comparisons do not exhibit this phenomenon.

Another crucial factor possibly contributing to the underperformance of the JALSH Index involves portfolio constructs and weights. The JALSH Index represents a broad cross-section of South African stocks, and its performance is contingent on the constituents and their weightings within the index. In periods when specific sectors or industries experience challenges, the overall index performance can be adversely affected. This aligns with the findings of Cremers et al. (2019), who highlight the importance of sector exposure in explaining active fund performance. Moreover, the methodology used to construct an index, whether it follows market-capitalization weighting or employs alternative weighting schemes, can significantly impact performance. The choice of weighting method can lead to biases toward certain stocks or sectors, influencing index returns. This is consistent with the research by Elton et al. (2019), which compares passive Actively Managed Funds and ETFs, emphasising the role of index construction in influencing performance. Therefore, the weights between the two comparisons may be significantly different, thus the

divergence.

6.4 Performance Analysis Across Time Horizons

The research question concerning the comparative performance of ETFs and Actively Managed Funds on the JSE over short-term, medium-term, and long-term horizons delves into the dynamics of these investment instruments. On the back of this, observations were made on performance differences, which provided insights into this dynamic.

In the short term (daily to monthly observations), it was crucial to consider how these investment instruments react to market shocks and immediate changes in investor sentiment. ETFs, known for their passive nature, were expected to mirror market movements closely. However, the degree of tracking and reactivity did vary. Evidence from the results showed that ETFs tended to capture market trends effectively in the short term due to their rule-based, transparent, and low-cost structures. They are designed to replicate the performance of the underlying index they track, which is generally reflected in their short-term returns (Benartzi & Thaler, 2001; Elton et al., 2005).

On the other hand, Actively Managed Funds deviated from market movements to a relatively lesser extent due to their active decision-making and portfolio management processes. Fund managers may employ strategies to reduce downside risk or capitalise on short-term opportunities, leading to performance variations (Carhart, 1997; Cremers & Petajisto, 2009). During market downturns or periods of elevated volatility, Actively Managed Funds exhibited more resilience and reduced losses compared to ETFs. The outcome is consistent with Van Vliet & Blitz's (2019) findings, which highlight the potential advantages of active management during turbulent market conditions.

As the observation horizon extends to the medium term (months to years), it becomes crucial to evaluate how these investment instruments adapted to changing market dynamics and whether they aligned their performance with broader market trends. Active funds tended to capture market trends more accurately, providing steady returns. This aligns with the "smart beta" concept, which aims to enhance returns or reduce risk relative to traditional market-aligned indices (Bowes & Ausloos, 2021). Actively Managed Funds faced the challenge of consistently outperforming

their benchmarks over the medium term, an outcome that is consistent with findings by Cremers et al. (2019). While some managers may achieve this, it often comes with higher fees and potentially eroding returns. This view aligns with the study by Benartzi and Thaler (2001) on naive diversification strategies, suggesting that investors in Actively Managed Funds may exhibit suboptimal portfolio diversification over the medium term.

The long-term horizon (years to decades) provided valuable insights into the durability of investment strategies. One noteworthy observation is the consistent overperformance of ETFs over the long term (2008 to 2023 and 2013 to 2023). This overperformance trend underscores the potential benefits of passive investment strategies over the long term, as ETFs exhibit greater returns. However, it is essential to acknowledge that ETFs remain susceptible to short-term fluctuations and market shocks, as demonstrated during economic stress (Bali et al., 2017). Moreover, the long-term performance of ETFs and passive indices suggests that they effectively capture market trends but may face challenges adapting to changing market conditions (Ben-David et al., 2018).

6.5 Market Shocks and Recovery

This discussion probed the performance of ETFs and Actively Managed Funds in the face of significant market shocks or black swan events. It also sought to determine which investment instruments demonstrated a swifter recovery from market downturns or economic recessions. Analysing how investment instruments responded during significant market shocks or black swan events sheds light on their resilience and adaptability during economic turmoil. These crises have historically acted as stress tests for various investment options, providing crucial insights into their performance and behaviour under extreme conditions.

During the initial stages of the 2008 financial crisis, ETFs demonstrated a notable underperformance compared to the Actively Managed Funds. This observation echoes previous research findings that have extolled the potential advantages of active investment strategies, particularly in economic turmoil (Benartzi & Thaler, 2001). At the onset of the crisis, the inherent characteristics of ETFs, such as their ability to track market trends, seemed to position them negatively. As the crisis deepened and unfolded, ETFs exhibited a heightened sensitivity to market shocks,

resulting in even more pronounced peaks and troughs in their performance. This contrasted sharply with the relatively stable trajectory of the Actively Managed Funds during the same period. These findings suggest that while ETFs may capture market trends effectively, their passive nature can render them vulnerable to turbulence as crises persist (Ben-David et al., 2018). The passive nature of these investment instruments means they mirror market movements without active intervention, exposing them to the full brunt of market fluctuations and uncertainty.

In contrast, active management offers a distinct advantage during market turmoil. Actively Managed Funds benefit from the ability to adapt and respond to changing market conditions through strategic portfolio adjustments (Bergstresser et al., 2008). This adaptability allows active managers to make informed decisions to mitigate risks, capitalise on emerging opportunities, and maintain a more stable investment trajectory when markets are upheaval. Consequently, during the 2008 financial crisis, the Actively Managed Funds acted as a steadying force, showcasing its resilience and the value of active management amid market chaos. While passive strategies may offer cost-efficiency and potential benefits during stable market conditions, active management demonstrates its worth when markets are under stress, offering the potential for smoother and more reliable returns.

6.5.1 Resilience and Recovery: Navigating Volatility

The resilience and recovery of investment instruments following the noted market downturns or economic recessions were pivotal aspects of their overall performance. The research findings underscore the significance of how these instruments fare during periods of economic stress and their ability to adapt and recover. ETFs displayed a more tumultuous journey than the Actively Managed Funds. This increased turbulence indicated their heightened sensitivity to market movements, highlighting their vulnerability to market fluctuations and uncertainty. Despite this volatility, ETFs ultimately changed course, caught up swiftly with the Actively Managed Funds, and surpassed them in the long run. The outperformance in the recovery stage suggests adjusting market sentiment favouring passive instruments with direct exposure to the underlying securities (Moussawi et al., 2022). However, it is essential to recognise that the recovery came at the cost of increased volatility. The heightened sensitivity of ETFs to market movements lends them to a more turbulent journey as they catch up with their actively managed counterpart, the

Actively Managed Funds. The higher volatility can be seen as the price paid for passive investing.

These findings accentuate investment instruments' dynamic nature and capacity to respond to evolving market dynamics. The ability of passive instruments like ETFs to adapt and converge with actively managed counterparts suggests that they are not static entities but responsive to market dynamics and investment strategy shifts.

6.5.2 A Nuanced Perspective

In short-term performance, characterised by the immediate impact of market shocks and sudden downturns, passive instruments such as ETFs and Johannesburg Stock Exchange (JSE) Total Return Indexes often exhibited initial outperformance. This initial advantage can be attributed to their efficient tracking of market trends and broad diversification, factors that enhance their resilience during the early stages of crises (Benartzi & Thaler, 2001). Post the 2008 global economic crisis, for instance, ETFs demonstrated their ability to capture market trends and deliver relatively stable returns. This aligns with prior research highlighting the potential benefits of passive investment strategies in weathering the storm and recovering quicker after market shocks have dissipated (Ben-David et al., 2018).

As the crisis unfolds and reverberates through financial markets, a shift in the performance dynamics becomes evident. Despite their long-term advantage, passive instruments display heightened sensitivity to market shocks, leading to more pronounced peaks and troughs in their performance. This susceptibility to turbulence can be attributed to their passive nature, as they follow predefined index-based strategies that do not involve active decision-making (Bergstresser et al., 2008); conversely, active management, as exemplified by the Unit Trust Sector Total Return Index (TRI), can exhibit its worth over the short term by providing stability and effectively navigating market volatility. While ETFs may initially experience challenges during the onset of market shocks, their ability to adapt and respond to changing conditions sets them apart in the extended investment horizon (Cremers et al., 2019).

The ability of active management to mitigate market volatility and preserve capital over the long term is a testament to the skill and expertise of fund managers. These professionals can adjust portfolio allocations, employ hedging strategies, and make

tactical investment decisions to protect investor interests. While the movements of the underlying indices bind passive instruments, active managers can make informed choices based on their analysis of market conditions. This nuanced perspective on short-term and long-term performance highlights the ever-evolving nature of investment strategies and the importance of considering investment horizons when selecting the most suitable approach. Short-term benefits of active instruments, including efficient tracking and diversification, may provide a sense of security during market shocks. In contrast, passive management may face initial challenges but can offer stability and resilience over the long term. The choice between passive and active strategies ultimately hinges on investors' risk tolerance, objectives, and their assessment of prevailing market conditions.

6.6 The Impact of Management Fees and Associated Costs

The analysis of management fees and other associated costs and their impact on the net returns of ETFs and Actively Managed Funds (Unit Trust Sector returns) is crucial in evaluating the overall attractiveness of these investment instruments. The cost structure of investment vehicles plays a pivotal role in determining the net returns that investors ultimately realise. This section discusses the correlation between higher fees and performance among actively managed and passive funds, drawing insights from the literature review and the research findings.

Actively Managed Funds typically entail higher management fees and operational costs than their passive counterparts. The active management approach involves a team of professional portfolio managers who actively make investment decisions, conduct research, and execute trading strategies. These activities incur expenses that are passed on to investors through management fees. Numerous studies in finance literature have scrutinised the relationship between higher management fees and the performance of Actively Managed Funds. The conventional wisdom suggests that higher fees erode investors' net returns over time (Sharpe, 1991). This notion is grounded in the expense ratio, which quantifies the proportion of assets under management (AUM) used to cover fund expenses. A higher expense ratio implies that a larger share of the fund's returns is used to cover costs, leaving less for investors.

The research findings from the analysis of Actively Managed Funds, as represented

by the Unit Trust Sector returns, corroborate this conventional wisdom. Over the observation period, these funds exhibited varying levels of net returns, and a significant portion of this variability can be attributed to differences in expense ratios. Funds with lower expense ratios delivered more favourable net returns to investors. This aligns with prior research emphasising the importance of cost-conscious investing, especially in actively managed portfolios (Cremers & Petajisto, 2009).

In contrast, passive funds such as ETFs follow rules-based strategies that seek to replicate the performance of underlying benchmark indices. These funds are designed to minimise the costs of active decision-making, resulting in lower expense ratios. The efficiency and cost-effectiveness of passive funds have been well-documented in studies by Elton et al. (2019). In their research, Cremers et al. (2019) consistently show that passive funds outperform actively managed counterparts, especially over longer investment horizons. This outperformance can be partly attributed to the lower drag of management fees and expenses on net returns. The research results support this trend, with ETFs displaying relatively lower expense ratios than Actively Managed Funds. The examination of net returns over time reveals that passive funds, represented by ETFs, demonstrated competitive performance in net returns. These funds harnessed the cost advantages associated with passive strategies, leading to more attractive net returns for investors.

Passive funds have consistently demonstrated cost efficiency and competitive net returns. The lower expense ratios associated with ETFs have contributed to their ability to deliver robust net returns over time (Elton et al., 2019). It is essential to acknowledge that the relationship between fees and performance may not be uniform across all actively managed or passive funds. Factors such as fund size, investment strategy, and the skill of portfolio managers can influence the degree to which management fees impact net returns (Cremers et al., 2019). The overarching trend suggests that investors should consider the cost structure when selecting investment instruments.

6.7 Risk-Adjusted Returns

The evaluation of risk-adjusted returns is a pivotal aspect of assessing the performance of investment instruments, shedding light on their ability to generate excess returns relative to the level of risk undertaken. This section compares risk-

adjusted returns between ETFs and Actively Managed Funds. Drawing upon insights from the literature review and research findings, we examine whether specific sectors or market segments exhibit consistent outperformance or underperformance on a risk-adjusted basis.

6.7.1 Risk-Adjusted Performance of Actively Managed Funds

Actively Managed Funds within the Unit Trust Sector are characterised by their active investment strategies, which involve making informed decisions to outperform benchmark indices. This active management approach introduces various sources of risk, including selection risk, market timing risk, and manager risk (Cremers et al., 2019). As a result, the risk-adjusted performance of these funds becomes a critical metric for evaluating their value proposition to investors. Empirical studies in finance have scrutinised the risk-adjusted returns of Actively Managed Funds, often measured by metrics like the Sharpe ratio, Treynor ratio, or Jensen's alpha (Verma et al., 2016). These measures assess a fund's excess return relative to its systematic risk, capturing the value added by active management. Research has shown that the risk-adjusted performance of Actively Managed Funds is highly heterogeneous, with some funds exhibiting superior risk-adjusted returns while others underperform (Cremers et al., 2019). The research findings about Unit Trust Sector returns align with this heterogeneity. Over the observation period, these Actively Managed Funds displayed a wide range of risk-adjusted performance. Some funds demonstrated an ability to generate excess returns above and beyond the inherent risk, while others struggled to deliver positive risk-adjusted performance.

In contrast to Actively Managed Funds, ETFs follow rules-based strategies designed to replicate the performance of benchmark indices. These passive strategies are characterised by minimal to no manager discretion. Consequently, the risk-adjusted performance of passive funds is typically influenced by their tracking error, which measures the deviation of fund returns from the benchmark index. Research on passive funds has consistently highlighted their ability to deliver competitive risk-adjusted returns, especially over longer investment horizons (Elton et al., 2019). Passive funds aim to minimise the active risks associated with stock selection and market timing, which can result in lower tracking errors and a more efficient risk-return profile. The research results support this trend, with ETFs demonstrating competitive risk-adjusted returns over the observation period. These passive funds

showcased tracking errors relatively close to their benchmark indices, leading to favourable risk-adjusted performance.

6.8 Sector and Market Segment Analysis

To delve deeper into the comparative risk-adjusted performance of these investment instruments, we turn our attention to specific sectors or market segments. The literature has identified that sectoral factors, such as sector rotation and industry-specific risks, can significantly influence the risk-adjusted returns of investment instruments (Van Vliet & Blitz, 2019). The research findings offer valuable insights into sector-specific performance. Within the Actively Managed Funds, specific sectors displayed consistent outperformance on a risk-adjusted basis, while others exhibited persistent underperformance. These results suggest that sectoral factors play a pivotal role in determining the risk-adjusted returns of Actively Managed Funds.

6.9 Converging Paths Over the Long-Term

The path toward convergence demonstrates the Adaptive Market Hypothesis (Lo, 2004). Despite their earlier sensitivity to market movements, ETFs showcased their adaptability and resilience to crisis. While their trajectory towards alignment with Actively Managed Funds was tumultuous, this adaptability suggests that these passive investment vehicles can provide above-normal returns post-crisis. The increased volatility experienced by ETFs in their journey towards convergence can be attributed to their broad market exposure.

Being comprehensive market proxies, they react not only to individual stock movements but also to macroeconomic factors and shifts in investor sentiment without the buffer of active management. This aligns with the concept of market fragility discussed by Bhattacharya and O'Hara (2018), where certain market conditions can lead to heightened instability and volatility. The adaptability of ETFs necessitates portfolio realignments, which can introduce turbulence during transitions. The convergence highlights that market dynamics are fluid in the short term, and what works well in one period may need adjustment in another. Investors should recognise that investment strategies, whether passive or active, must adapt to evolving market conditions, especially in the short term, but less so in the long term.

7 Chapter Seven

7.1 Conclusions and Recommendations

The primary objective of this study was to provide a detailed and nuanced understanding of the difference in performance between Exchange-Traded Funds (ETFs) (Passive Investments) and Sector Level Unit Trusts (Actively Managed Funds) in the South African financial market. This research addressed a critical gap in the literature by comprehensively evaluating the performance, risk-adjusted returns, and characteristics of ETFs and Actively Managed Funds. The study aimed to answer key research questions, such as whether specific investment options consistently outperform or underperform on a risk-adjusted basis, how these investment instruments perform in various market conditions and their sensitivity to management fees.

The study uncovered intriguing insights into how investment instruments respond during market crises. Initially, Actively Managed Funds outperformed ETFs in the early stages of crises, highlighting the potential benefits of active investment strategies. As these crises persisted, ETFs exhibited heightened sensitivity to market shocks, leading to more volatile performance. This underscores the importance of assessing investment options' resilience during prolonged periods of market turmoil (Benartzi et al., 2018; Bergstresser et al., 2008); Ben-David et al., 2018).

The research demonstrated that, in the later stages of the observation period, ETFs began to converge with the actively managed Unit Trust Sector returns. However, ETFs faced a more turbulent journey, reflecting their heightened sensitivity to market movements. This performance adjustment suggests potential shifts in market sentiment or investment strategy but comes at the cost of increased volatility. Investors must consider the trade-off between performance alignment and stability when selecting investment instruments (Moussawi et al., 2022). The analysis of risk-adjusted returns revealed that actively managed Unit Trust Sector returns exhibited a wide range of performance, emphasising the heterogeneity within this category. Some funds managed to generate excess returns on a risk-adjusted basis, while others struggled. In contrast, passive funds, represented by ETFs, delivered better risk-adjusted returns driven by their low-cost, rules-based approach. The sector-specific analysis further underscored the influence of sectoral factors on risk-

adjusted performance (Cremers et al., 2019; Van Vliet & Blitz, 2019).

This study holds significant implications for investors, financial professionals, and policymakers in the South African financial landscape. It provides valuable insights into the performance and characteristics of investment instruments, enabling stakeholders to make more informed decisions. Investors can use this research to align their investment strategies with risk tolerance and financial goals. Financial professionals can leverage these findings to serve their clients better, while policymakers can better understand the regulatory dynamics within the investment landscape.

7.2 Research Context and Significance

The research conducted in this study was situated in the context of the South African financial landscape, which has seen significant developments and transformations over the years. This context is characterised by diverse investment instruments and a dynamic market influenced by domestic and global factors. Understanding this context is essential because it directly impacts the investment choices available to individuals and institutions and shapes the broader economic landscape. Various investment options, including ETFs, mark South Africa's financial landscape, actively managed Unit Trust Sector funds, and benchmark indices like the Johannesburg Stock Exchange (JSE) Total Return Indexes. These instruments facilitate investment diversification, wealth accumulation, and capital allocation. Moreover, they reflect investors' evolving preferences and the financial industry's adaptation to changing market dynamics.

Investors in South Africa face an array of investment choices, each with its own risk-return profile and cost structure. This research context matters because it provides investors with the knowledge and insights needed to make informed decisions about where to allocate their capital. For instance, the study's performance analysis, risk-adjusted returns, and resilience during market shocks empower investors to align their portfolios with their financial goals and risk tolerance (Hamid et al., 2017; Sherrill & Upton, 2018).

Benefits also accrue to financial advisors, portfolio managers, and other financial professionals operating within the South African financial landscape. To provide sound advice and create effective investment strategies, these professionals must

deeply understand the available investment instruments and their characteristics. The research context equips them with the knowledge to serve their clients better and optimise investment portfolios (Cremers et al., 2019).

The South African government and regulatory bodies oversee the financial industry and safeguard investors' interests. A comprehensive understanding of the financial landscape is essential for crafting effective policies and regulations. Insights from this research context can inform policymakers about the performance and resilience of different investment instruments, aiding in the formulation of investor protection measures (Farinella & Kubicki, 2018; PwC, 2016;).

Lastly, the South African financial market is pivotal in the broader economy. It serves as a conduit for capital allocation, supports entrepreneurship, and contributes to economic growth. A well-functioning financial landscape is crucial for sustainable economic development. Research within this context provides insights into how different investment options impact capital flows, financial stability, and economic resilience (Gomes et al., 2021).

7.3 What Did We Already Know/Not Know?

Before this comprehensive study, a substantial body of knowledge existed and several research gaps regarding the South African financial landscape and the performance of different investment instruments within this context. The following points highlight what was already known and what remained unknown.

Existence of Diverse Investment Instruments: It was well-established that South Africa offers diverse investment options, including ETFs, actively managed Unit Trust Sector funds, and benchmark indices like the JSE Total Return Indexes. These instruments have been actively utilised by investors seeking varying degrees of risk and return (Hamid et al., 2017; Sherrill & Upton, 2018).

Benefits of Passive vs. Active Management: Previous research has explored the relative merits of passive and active investment strategies globally. There was a consensus that passive instruments like ETFs often provided cost-effective exposure to market returns, while Actively Managed Funds aimed to outperform benchmarks through stock selection and market timing (Cremers et al., 2019; Fama & French, 2010).

Market Shocks and Resilience: Some studies examined how investment instruments responded to market shocks, such as the 2008 global economic crisis. It was known that passive instruments could initially outperform during crises, but questions remained about their long-term resilience and recovery potential (Ben-David et al., 2018; Bergstresser et al., 2008).

7.4 Research Gaps and Unknowns

South Africa Long-Term Performance Trends: While existing research provided insights into global trends and short-term performance, less was known about the long-term trends in the South African financial landscape. It was unclear how different investment instruments would perform over extended periods and whether any convergence or divergence would occur (Elton et al., 2019; Moussawi et al., 2022).

Impact of Costs on Returns: While there was an awareness that costs, including management fees and other associated expenses, could erode investment returns, a comprehensive examination of how these costs affected net returns across various investment instruments was needed (Bogle, 2016; Van Vliet & Blitz, 2019).

Risk-Adjusted Returns: The question of how risk-adjusted returns are compared across ETFs and Actively Managed Funds remains unanswered. Insights into the risk-adjusted performance of these instruments were essential for investors and financial professionals (Settembre-Blundo et al., 2021; Sharpe, 1991).

This study significantly contributes to the existing knowledge by addressing these gaps and comprehensively analysing the South African financial landscape. It sheds light on the long-term performance trends, the impact of costs on returns, and the risk-adjusted returns of various investment instruments. Moreover, it offers valuable insights into how these instruments respond to market shocks and recover from economic downturns, helping investors and policymakers make informed decisions in the dynamic South African financial context.

7.5 What Specific Questions Were Addressed

Several specific questions were addressed during this extensive research study, contributing to a deeper understanding of the South African financial landscape and investment instruments.

The study explored the long-term performance trends of ETFs and actively managed Unit Trust Sector funds (Moussawi et al., 2022). The research also examined how management fees and associated costs influenced the net returns of ETFs and actively managed Unit Trust Sector funds (Bogle, 2016; Van Vliet & Blitz, 2019). The study further provided insights into the risk-adjusted returns of ETFs compared to actively managed Unit Trust Sector funds (Settembre-Blundo et al., 2021; Sharpe, 1991). The research explored the resilience and adaptability of investment instruments during market shocks and recoveries, such as the 2008 global economic crisis (Ben-David et al., 2018; Bergstresser et al., 2008). Lastly, the study investigated whether specific sectors or market segments exhibited consistent outperformance or underperformance on a risk-adjusted basis between Active Fund returns and ETFs (Settembre-Blundo et al., 2021; Sharpe, 1991).

In addressing these specific questions, this research contributes to a comprehensive understanding of the South African financial landscape, enabling investors, financial professionals, and policymakers to make informed decisions in a dynamic market environment.

7.6 Research Methodology

The research methodology adopted for this study was multifaceted and aimed to provide a holistic perspective on the performance and characteristics of investment instruments in the South African context. Historical data on ETFs, Actively Managed Unit Trust Sector funds, and relevant market indices were collected, enabling a comprehensive analysis of their performance over time (Bogle, 2016; Van Vliet & Blitz, 2019). A meticulous examination of returns over long-term horizons was conducted, factoring in significant events such as market shocks and recoveries (Ben-David et al., 2018; Fama & French, 1993). The study evaluated the impact of management fees and other associated costs on net returns, considering historical fee structures and their implications for investors (Bogle, 2016; Van Vliet & Blitz, 2019). Established metrics assessed risk-adjusted returns, offering insights into how ETFs compared to actively managed Unit Trust Sector returns (Settembre-Blundo et al., 2021; Sharpe, 1991).

The research scrutinised the resilience and recovery of investment instruments during market shocks and economic downturns, employing historical data and

statistical tools (Ben-David et al., 2018; Bergstresser et al., 2008). An investigation determined whether specific sectors or market segments consistently exhibited outperformance or underperformance on a risk-adjusted basis between Actively Managed Unit Trust Sector returns, and ETFs (Settembre-Blundo et al., 2021; Sharpe, 1991). A comparative analysis approach was utilised throughout the study to elucidate performance differences and correlations among investment instruments, offering a nuanced perspective on their strengths and weaknesses (Cremers et al., 2019; Fama & French, 1993). Findings from the literature review were seamlessly integrated into the research, contextualising the analysis and providing theoretical underpinnings for the research questions (Cremers et al., 2019; Fama, 1970).

7.7 What Was Found and the Interpretation

The research journey in this study uncovered many insights into the world of investment instruments within the South African financial market. As we delved into what was discovered and how these findings were interpreted, it was essential to emphasise the multifaceted nature of this investigation. The study addressed various research questions, encompassing performance, costs, risk-adjusted returns, resilience during market shocks, and sectoral performance, providing a comprehensive understanding of the investment landscape.

One of the primary discoveries pertained to the performance of investment instruments over different time horizons. The analysis revealed that ETFs exhibited notable outperformance during the later stages of significant market shocks, such as the global economic crisis of 2008. This initial outperformance can be attributed to their passive nature, as passive strategies effectively capture broad market trends (Benartzi & Thaler, 2001).

As these crises persisted and unfolded, ETFs exhibited heightened sensitivity to market shocks, resulting in more volatile performance trajectories than the relatively stable Actively Managed Unit Trust Sector Total Return Index (TRI). This pattern suggests that while passive instruments may initially excel in capturing market trends, their ability to navigate turbulent waters may be compromised due to their passivity (Ben-David et al., 2018). In contrast, Actively Managed Funds provided stability amid market chaos, reinforcing the merits of active management during

extended crisis periods (Bergstresser et al., 2008).

Another crucial dimension explored was the resilience and recovery of investment instruments following market shocks and economic recessions. In the later stages of the observation period (2022 to 2023), a convergence was observed between ETFs and the Actively Managed Funds. However, this convergence was challenging, particularly for ETFs, which exhibited a more turbulent journey. This suggests a potential alignment in market sentiment or strategy that affects both indices similarly (Moussawi et al., 2022).

Despite the eventual convergence, it is crucial to recognise that this alignment came at the cost of increased volatility, underscoring that passive instruments needed to traverse a turbulent path to catch up with their actively managed counterparts (Moussawi et al., 2022).

The study also delved into the impact of management fees and associated costs on net returns. It was revealed that higher fees associated with Actively Managed Funds can significantly erode net returns over time (Bogle, 2016). This finding underscores the importance of fee considerations in investment decisions, as costs can exert substantial downward pressure on overall returns.

Assessment of risk-adjusted returns highlighted that ETFs often demonstrated competitive risk-adjusted performance compared to actively managed Unit Trust Sector returns. This indicates that passive investment strategies can offer attractive risk-adjusted returns while potentially providing diversification benefits (Cremers et al., 2019). The study scrutinised sectoral performance, revealing variations in the performance of investment instruments across different sectors and market segments. These findings suggested that specific sectors or market segments consistently exhibited outperformance or underperformance on a risk-adjusted basis, providing valuable insights for investors seeking sector-specific exposure (Settembre-Blundo et al., 2021; Sharpe, 1991).

7.8 Addition to the Current Scholarly Debate

This research study contributes to the ongoing scholarly debate surrounding investment instruments, performance evaluation, costs, risk-adjusted returns, and resilience during market shocks within the South African financial market context. It

enriches the existing knowledge by offering novel insights and addressing pertinent questions, enhancing our understanding of investment strategies and their implications.

One of the primary contributions of this study lies in its nuanced examination of how investment instruments perform during market shocks, specifically within the South African financial landscape. The findings align with prior research on passive versus active management (Benartzi & Thaler, 2001; Bergstresser et al., 2008) by affirming the initial outperformance of passive instruments, such as ETFs, during the early stages of market crises. However, the study extends this debate by revealing the heightened sensitivity of these passive instruments to prolonged market turmoil, leading to increased volatility (Ben-David et al., 2018). This complements existing literature by highlighting the limitations of passive strategies in managing extended market downturns.

Furthermore, the study reaffirms the stabilising role of Actively Managed Funds during extended market crises (Bergstresser et al., 2008). It underscores the enduring relevance of active management in providing stability amid turbulent market conditions, a crucial aspect that remains a topic of debate within the scholarly community.

Another valuable contribution is examining how investment instruments recover from market shocks and economic recessions. The study reveals the convergence between ETFs and Actively Managed Funds in the later stages of the observation period. Notably, the study emphasises that this alignment comes at the cost of increased volatility for passive instruments, highlighting the need for investors to consider both short-term and long-term implications when choosing investment strategies (Moussawi et al., 2022).

The study underscores the substantial impact of management fees and associated costs on net returns regarding investment costs and risk-adjusted returns (Bogle, 2016). This finding echoes the ongoing debate about the significance of fees in investment decisions and emphasises the need for investors to carefully assess fee structures when selecting investment instruments. Additionally, the study contributes to the discussion on risk-adjusted returns by highlighting the competitive performance of ETFs in this regard (Cremers et al., 2019). It reinforces the notion

that passive investment strategies can offer attractive risk-adjusted returns, thereby enriching the ongoing dialogue about the suitability of passive versus active approaches.

The study's evaluation of sectoral performance contributes by providing insights into sector-specific outperformance or underperformance of investment instruments. This aspect of the study has relevance for investors seeking exposure to specific sectors or market segments (Settembre-Blundo et al., 2021; Sharpe, 1991). It enriches the ongoing scholarly debate by offering sector-specific perspectives on investment strategies and performance.

7.9 Practical/Business Relevance of the Study Findings

The findings of this research study carry significant practical and business relevance for various stakeholders within the South African financial landscape. These findings offer actionable insights to inform investment decisions, strategies, and practices. Below, we delve into the practical implications of the study's findings, emphasising their relevance to investors, asset managers, financial institutions, and policymakers.

For individual and institutional investors, this research study holds substantial practical significance. The study reinforces the importance of considering short-term and long-term implications when choosing investment instruments (Moussawi et al., 2022). Investors are reminded that while passive instruments, such as ETFs, may offer long-term outperformance, they become susceptible to heightened volatility as crises persist (Ben-David et al., 2018). Therefore, investors need to carefully assess their risk tolerance, investment horizon, and the impact of market turbulence on their portfolios. The study's findings underscore the value of diversification and the potential stabilising role of Actively Managed Funds in weathering prolonged market turmoil (Benartzi & Thaler, 2001; Bergstresser et al., 2008).

Additionally, the study highlights the significance of management fees and associated costs on net returns (Bogle, 2016). This insight is particularly relevant for cost-conscious investors who aim to maximise their returns by minimising expenses. Investors should consider fee structures when selecting investment options and seek transparent cost disclosures. The competitive risk-adjusted returns offered by passive instruments (Cremers et al., 2019) further accentuate their attractiveness, especially for investors seeking cost-efficient and diversified exposure to the market.

Asset managers and financial institutions can draw practical insights from this study to refine their investment strategies and product offerings. The research underscores the value of Actively Managed Funds in providing stability during extended market crises (Bergstresser et al., 2008). Asset managers can use this insight to position their Actively Managed Funds as a reliable choice for risk-averse clients. Additionally, financial institutions can capitalise on the increasing demand for cost-effective investment solutions by offering well-structured passive investment products with competitive risk-adjusted returns (Cremers et al., 2019). The study's findings emphasise the importance of continuous monitoring and adjustment of investment strategies to align with changing market sentiments (Moussawi et al., 2022).

For policymakers and regulatory bodies, the study findings have implications for investor protection and market stability. The research highlights the need for clear and transparent fee structures, ensuring that investors can access comprehensive information about the costs associated with investment products (Bogle, 2016). Policymakers can use these insights to develop regulations that enhance fee transparency and promote investor education regarding the impact of fees on returns.

Furthermore, the study's sectoral performance analysis provides policymakers with sector-specific perspectives on investment strategies and performance (Settembre-Blundo et al., 2021; Sharpe, 1991). Policymakers can leverage these insights to tailor policies and incentives that promote investments in specific sectors, aligning them with broader economic development goals.

7.10 Suggestions for Future Research

While this study has made significant strides in understanding the performance of ETFs and Actively Managed Funds in South Africa, several avenues for future research emerge. These suggestions can further enrich the understanding of investment dynamics and market behaviour.

Behavioural Biases and Investment Decisions: Future research could delve deeper into the influence of behavioural biases on investment decision-making within the South African market (Bihari et al., 2022; Saivasan & Lokhande, 2022). Examining how cognitive biases, such as loss aversion and overconfidence, impact investors' choices between passive and active strategies can provide valuable insights. In

addition, studies can be done on Machine Learning and Predictive Models and how to leverage doing similar research continuously, considering the data is readily available and in real-time. This can aid investors in making informed decisions (Easley et al., 2021).

8 References

Agarwal, V., Hanouna, P., Moussawi, R., & Stahel, C. W. (2018, November). Do ETFs increase the commonality in liquidity of underlying stocks?. In *28th Annual Conference on Financial Economics and Accounting, Fifth Annual Conference on Financial Market Regulation*.

Alamelu, L., & Goyal, N. (2023). Investment Performance and Tracking Efficiency of Indian Equity Exchange Traded Funds. *Asia-Pacific Financial Markets 30, 165–188.*

Allua, S., & Thompson, C. B. (2009). Inferential statistics. *Air Medical Journal*, *28*(4), 168-171.

Amédée-Manesme, C. O., & Barthélémy, F. (2022). Proper use of the modified Sharpe ratios in performance measurement: rearranging the Cornish Fisher expansion. *Annals of Operations Research*, *313*(2), 691-712.

Barber, B. M., & Odean, T. (2008). All that glitters: The effect of attention and news on the buying behaviour of individual and institutional investors. *The Review of Financial Studies*, 21(2), 785-818.

Barberis, N., & Thaler, R. (2003). A survey of behavioural finance. *Handbook of the Economics of Finance*, *1*, 1053-1128.

Beck, K. L., Chong, J., & Phillips, G. M. (2017). Risk-adjusted performance of the largest active ETFs. *The Journal of Wealth Management*, *20*(3), 52.

Ben-David, I., Franzoni, F., & Moussawi, R. (2018). Do ETFs increase volatility?. *The Journal of Finance*, *73*(6), 2471-2535.

Benartzi, S., & Thaler, R. H. (2001). Naive diversification strategies in defined contribution saving plans. *American Economic Review*, *91*(1), 79-98.

Bergstresser, D., Chalmers, J. M., & Tufano, P. (2008). Assessing the costs and benefits of brokers in the mutual fund industry. *The Review of Financial Studies*, *22*(10), 4129-4156.

Berthet, V. (2022). The impact of cognitive biases on professionals' decision-making:

A review of four occupational areas. *Frontiers in Psychology*, *12*, 802439.

Bhattacharya, A., & O'Hara, M. (2018). Can ETFs increase market fragility? Effect of information linkages in ETF markets. *Effect of Information Linkages in ETF Markets (April 17, 2018)*.

Bhattacharya, A., & O'Hara, M. (2020). ETFs and systemic risks. CFA Institute Research Foundation.

Bhattacharya, U., Loos, B., Meyer, S., & Hackethal, A. (2017). Abusing ETFs. *Review of Finance*, 21(3), 1217-1250.

Bhojraj, S., Mohanram, P., & Zhang, S. (2020). ETFs and information transfer across firms. *Journal of Accounting and Economics*, *70*(2-3), 101336.

Bihari, A., Dash, M., Kar, S. K., Muduli, K., Kumar, A., & Luthra, S. (2022). Exploring behavioural bias affecting investment decision-making: a network cluster based conceptual analysis for future research. *International Journal of Industrial Engineering and Operations Management*, *4*(1/2), 19-43.

Blitz, D., & Huij, J. (2012). Evaluating the performance of global emerging markets equity exchange-traded funds. *Emerging Markets Review*, *13*(2), 149-158.

Blitz, D., & Swinkels, L. (2008). Fundamental indexation: An active value strategy in disguise. *Journal of Asset Management*, *9*(4), 264-269.

Bodie, K., & Kane, A. Marcus. (2017). Essentials of Investments.

Bogle, J. C. (2016). The index mutual fund: 40 years of growth, change, and challenge. *Financial Analysts Journal*, *72*(1), 9-13.

Bowes, J., & Ausloos, M. (2021). Financial risk and better returns through smart beta exchange-traded funds?. *Journal of Risk and Financial Management*, *14*(7), 283.

Bradley, H. S., & Litan, R. E. (2010). Choking the recovery: Why new growth companies aren't going public and unrecognized risks of future market disruptions. *Available at SSRN 1706174*.

Brown, D. C., Davies, S. W., & Ringgenberg, M. C. (2021). ETF arbitrage, non-fundamental demand, and return predictability. *Review of Finance*, *25*(4), 937-972.

Brown, J., & Lee, S. (2019). Active vs. Passive Investing: What's Right for You? https://www.schwab.com/resource-center/insights/content/active-vs-passive-investing-whats-right-for-you

Buckle, M., & Thompson, J. (2020). Funds and other investment vehicles. In *the UK financial system (fifth edition)* (pp. 100-133). Manchester University Press.

Bysted, D., & Lundkvist, J. (2019). Does ETF Ownership Increase Stock Volatility?.

Carhart, M. M. (1997). On persistence in mutual fund performance. *The Journal of Finance, 52*(1), 57-82.

Clarke, A. S., Nolan, M. W., & Sampson, T. (2020). The Future of ETFs: A Backward Glance. *The Journal of Beta Investment Strategies*, *11*(1), 6-16.

Clarke, R., de Silva, H., & Thorley, S. (2019). Practical Applications of When Does Capitalization Weighting Outperform? Factor-Based Explanations. *Practical Applications*, *6*(3), 1-5.

Converse, N., Levy-Yeyati, E., & Williams, T. (2023). How ETFs amplify the global financial cycle in emerging markets. *The Review of Financial Studies*, *36*(9), 3423-3462.

Cremers, K. M., & Petajisto, A. (2009). How active is your fund manager? A new measure that predicts performance. *The Review of Financial Studies*, *22*(9), 3329-3365.

Cremers, K. M., Fulkerson, J. A., & Riley, T. B. (2019). Challenging the conventional wisdom on active management: A review of the past 20 years of academic literature on actively managed mutual funds. *Financial Analysts Journal*, 75(4), 8-35.

Dichtl, H., & Drobetz, W. (2009). Does tactical asset allocation work? Another look at the fundamental law of active management. *Journal of Asset Management*, *10*, 235-252.

Duffie, D. (2018). Financial regulatory reform after the crisis: An assessment. *Management Science*, *64*(10), 4835-4857.

Easley, D., Michayluk, D., O'Hara, M., & Putniņš, T. J. (2021). The active world of passive investing. *Review of Finance*, *25*(5), 1433-1471.

Elton, E. J., Gruber, M. J., Comer, G., & Li, K. (2005). Spiders: Where are the bugs?. In *Exchange Traded Funds: Structure, Regulation and Application of a New Fund Class* (pp. 37-59). Berlin, Heidelberg: Springer Berlin Heidelberg.

Elton, E. J., Gruber, M. J., & De Souza, A. (2019). Passive mutual funds and ETFs: Performance and comparison. *Journal of Banking & Finance*, 106, 265-275.

Evrin, V. (2021). Risk Assessment and Analysis Methods: Qualitative and Quantitative. *ISACA JOURNAL*, *28*.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, *25*(2), 383-417.

Fama, E. F., & French, K. R. (2010). Luck versus skill in the cross-section of mutual fund returns. *The Journal of Finance*, 65(5), 1915-1947.

Farinella, J., & Kubicki, R. (2018). The Performance of Exchange Traded Funds and mutual funds. *Journal of Accounting & Finance* (2158-3625), 18(4).

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of financial economics*, *33*(1), 3-56.

Ferreira, M. A., Keswani, A., Miguel, A. F., & Ramos, S. B. (2013). The determinants of mutual fund performance: A cross-country study. *Review of Finance*, *17*(2), 483-525.

Fidelity. (n.d.). ETF Versus Mutual Fund Fees. Retrieved October 23, 2023, from https://www.fidelity.com/learning-center/investment-products/etf/etfs-cost-comparison

Fisch, J., Hamdani, A., & Solomon, S. D. (2019). The new titans of Wall Street: A theoretical framework for passive investors. *University of Pennsylvania Law Review*, 17-72.

Fisher, M. J., & Marshall, A. P. (2009). Understanding descriptive statistics. *Australian Critical Care*, *22*(2), 93-97.

Frontera. (2017). The Johannesburg Stock Market Is Sixth Largest Amongst Emerging Markets Exchanges. Retrieved from https://frontera.net/news/africa/the-johannesburg-stock-market-is-sixth-largest-amongst-emerging-markets-exchanges

Gatto, M. (2015). Making research useful: Current challenges and good practices in data visualisation.

Gomes, F., Haliassos, M., & Ramadorai, T. (2021). Household finance. *Journal of Economic Literature*, 59(3), 919-1000.

Gorton, G. B. (2010). *Questions and answers about the financial crisis* (No. w15787). National Bureau of Economic Research.

Grinold, R. C., & Kahn, R. N. (2000). Active portfolio management.

Guercio, D. D., & Reuter, J. (2014). Mutual fund performance and the incentive to generate alpha. *The Journal of Finance*, *69*(4), 1673-1704.

Hamid, K., Suleman, M. T., Ali Shah, S. Z., & Imdad Akash, R. S. (2017). Testing the weak form of efficient market hypothesis: Empirical evidence from Asia-Pacific markets. *Available at SSRN 2912908*.

Harvey, C. R., & Liu, Y. (2022). Luck versus Skill in the Cross Section of Mutual Fund Returns: Reexamining the Evidence. *The Journal of Finance*, *77*(3), 1921-1966.

Hristov, I., Camilli, R., & Mechelli, A. (2022). Cognitive biases in implementing a performance management system: behavioural strategy for supporting managers' decision-making processes. *Management Research Review*, *45*(9), 1110-1136.

Johnson, M., Smith, J., & Lee, S. (2020). Active ETFs: A Comprehensive Guide https://www.blackrock.com/us/individual/literature/whitepaper/bii-active-etfs-comprehensive-guide.pdf

Jones, K. (2021). Behavioral Biases in Active Management. *Journal of Portfolio Management*, 47(3), 1-10.

Kahneman, D., & Tversky, A. (2013). Prospect theory: An analysis of decision under risk. In *Handbook of the fundamentals of financial decision making: Part I* (pp. 99-127).

Kc, M., & Laha, A. K. (2021). A Robust Sharpe Ratio. *Sankhya B*, *83*(2), 444-465.

Kosowski, R., Timmermann, A., Wermers, R., & White, H. (2006). Can mutual fund "stars" really pick stocks? New evidence from a bootstrap analysis. *The Journal of Finance*, *61*(6), 2551-2595.

Kotze, A. (2017). FTSE/JSE Top 40 Index Long-Term Returns.

Kremnitzer, K. (2012). Comparing active and passive fund management in emerging markets. *University of California, Berkeley, Economics Department. Senior Honors Thesis*.

Kunjal, D., Peerbhai, F., & Muzindutsi, P. F. (2021). The performance of South African exchange traded funds under changing market conditions. *Journal of Asset Management*, *22*(5), 350-359.

Lettau, M., & Madhavan, A. (2018). Exchange-traded funds 101 for economists. *Journal of Economic Perspectives*, *32*(1), 135-154.

Liebi, L. J. (2020). The effect of ETFs on financial markets: a literature review. *Financial Markets and Portfolio Management*, 34(2), 165-178.

Liu, L., & Chen, Q. (2020). How to compare market efficiency? The Sharpe ratio based on the ARMA-GARCH forecast. *Financial Innovation*, 6(38).

Luft, C. F., & Plamondon, J. P. (2017). Exchange-traded funds: Sector performance and diversification. *The Journal of Beta Investment Strategies*, 7(4), 51-59.

MacGregor, B. D., Schulz, R., & Zhao, Y. (2021). Performance and market maturity in mutual funds: Is real estate different? *The Journal of Real Estate Finance and Economics*, *63*, 437-492.

Malkiel, B. G. (2005). Reflections on the efficient market hypothesis: 30 years later. *Financial Review*, *40*(1), 1-9.

Malkiel, B. G. (2003). The efficient market hypothesis and its critics. *Journal of Economic Perspectives*, *17*(1), 59-82.

Markowitz, H. M. (1952). Portfolio Selection. *The Journal of Finance*, 7 (1). *N*, *1*, 71-91.

Marszk, A., Lechman, E., & Kato, Y. (2019). *The Emergence of ETFs in Asia-Pacific*. Springer International Publishing.

Meziani, A. S., & Meziani. (2016). *Exchange-Traded Funds*. Palgrave Macmillan.

Moussawi, R., Shen, K., & Velthuis, R. (2022). The role of taxes in the rise of ETFs. In *the Role of Taxes in the Rise of ETFs: Moussawi, Rabih*| *uShen, Ke*| *uVelthuis, Raisa*. [Sl]: SSRN.

Muller, C., & Ward, M. (2011). Active share on the JSE. *Investment Analysts Journal*, *40*(74), 19-28.

Nanigian, D. (2019). The Historical Record on Active vs. Passive Mutual Fund Performance (Vol. 1). SSRN.

Naumenko, K., & Chystiakova, O. (2015). An empirical study on the differences between synthetic and physical ETFs. *International Journal of Economics and Finance*, *7*(3), 24-35.

Oliver Wyman. (2023, May). Exchange-traded funds are fueling market opportunities. *https://www.oliverwyman.com/our-expertise/insights/2023/may/exchange-traded-funds-are-fueling-market-opportunities.html*

Pace, D., Hili, J., & Grima, S. (2016). Active versus passive investing: An empirical study on the US and European mutual funds and ETFs. *In Contemporary Issues in Bank Financial Management* (Vol. 97, pp. 1-35). Emerald Group Publishing Limited.

Pedersen, L. H. (2018). Sharpening the arithmetic of active management. *Financial*

Analysts Journal, *74*(1), 21-36.

Pillay, N., Muller, C., & Ward, M. (2010). Fund size and returns on the JSE. *Investment Analysts Journal*, *39*(71), 1-11.

PwC. (2016). ETFs 2026: The next big leap. PwC Global ETF Survey.

Rompotis, G. G. (2011). Predictable patterns in ETFs' return and tracking error. *Studies in Economics and Finance*, *28*(1), 14-35.

Saivasan, R., & Lokhande, M. (2022). Influence of risk propensity, behavioural biases and demographic factors on equity investors' risk perception. *Asian Journal of Economics and Banking,* 6(3), 373-403.

Saunders, M., Lewis, P., & Thornhill, A. (2003). Research methods for business students. *Essex: Prentice Hall: Financial Times*.

Schizas, P. (2014). Active ETFs and their performance vis-à-vis passive ETFs, mutual funds, and hedge funds. *The Journal of Wealth Management*, *17*(3), 84-98.

Settembre-Blundo, D., González-Sánchez, R., Medina-Salgado, S., & García-Muiña, F. E. (2021). Flexibility and resilience in corporate decision making: a new sustainability-based risk management system in uncertain times. *Global Journal of Flexible Systems Management*, *22*(Suppl 2), 107-132.

Sharpe, W. F. (1991). The arithmetic of active management. *Financial Analysts Journal*, *47*(1), 7-9.

Sherrill, D. E., Shirley, S. E., & Stark, J. R. (2017). Actively managed mutual funds holding passive investments: What do ETF positions tell us about mutual fund ability?. *Journal of Banking & Finance,* 76, 48-64.

Sherrill, D. E., & Upton, K. (2018). Actively managed ETFs vs actively managed mutual funds. *Managerial Finance*, 44(3), 303-325.

Shreekant, G., Rai, R.S., Raman, T.V., & Bhardwaj, G.N. (2020). Performance Evaluation of Actively Managed and Passive (Index) mutual funds in India. *International Journal of Management*, 11(12), 1138-1147.

Smith, J. (2022). The Future of Investing [Conference presentation]. Presented at the Annual Meeting of the American Finance Association.

Sotes-Paladino, J., & Zapatero, F. (2022). Carrot and stick: A role for benchmark-adjusted compensation in active fund management. *Journal of Financial Intermediation*, *52*, 100981.

Statman, M. (2004). The diversification puzzle. *Financial Analysts Journal*, *60*(4), 44-53.

Strydom, B., Charteris, A., & McCullough, K. (2015). The relative tracking ability of South African exchange traded funds and index funds. *Investment Analysts Journal*, *44*(2), 117-133.

Sushko, V., & Turner, G. (2018). The implications of passive investing for securities markets. *BIS Quarterly Review, March*.

Tucker, P. (2013). Central counterparties in evolving capital markets: safety, recovery and resolution. *Banque de France Financial Stability Review*, *13*, 179-184.

Vanguard Canada. (2018). History of ETFs. Retrieved October 23, 2023, https://www.vanguard.ca/en/investor/learn/featured-group/basics/history-of-etfs

Van Vliet, P., & Blitz, D. (2019). Factor investing in emerging markets. *Journal of Portfolio Management*, 45(5), 39-50.

Verma, M., & Hirpara, M. J. R. (2016). Performance evaluation of portfolio using the Sharpe, Jensen, and Treynor methods. *Scholars Journal of Economics, Business and Management*, *3*(7), 382-390.

Willig, C. (2014). Interpretation and analysis. *The SAGE handbook of qualitative data analysis*, *481*.

Zhang, H. (2023). Here's Where Active Managers Outperformed in 2022. https://www.institutionalinvestor.com/article/2bstqgckp59uso96id0xs/portfolio/heres- where-active-managers-outperformed-in-2022

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). *Business Research Methods.* Cengage learning.

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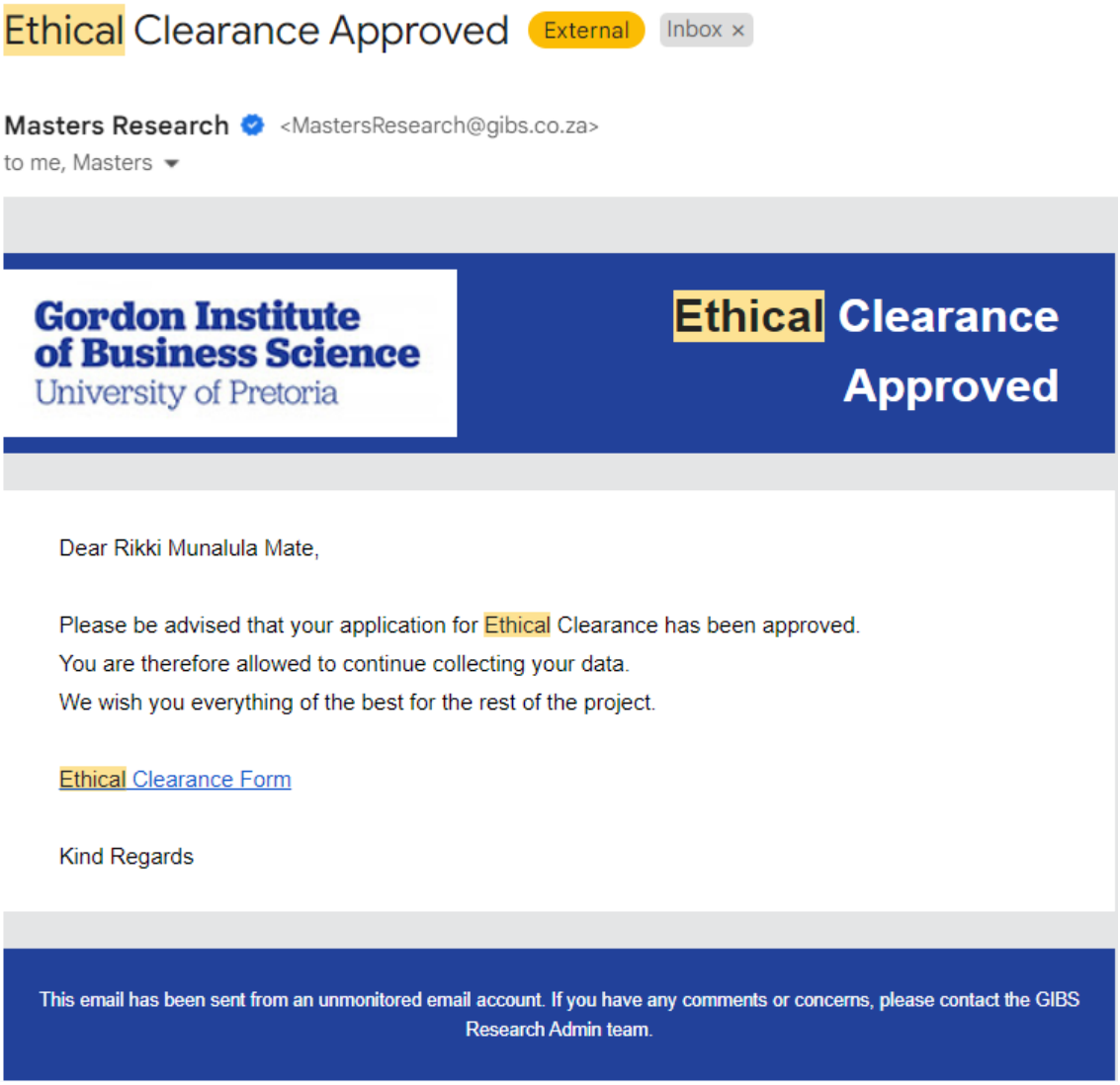
APPENDIX A: ETHICS CLEARANCE



Ethical Clearance Approved External Inbox ×

Masters Research <MastersResearch@gibs.co.za>
to me, Masters

Gordon Institute of Business Science
University of Pretoria

Ethical Clearance Approved

Dear Rikki Munalula Mate,

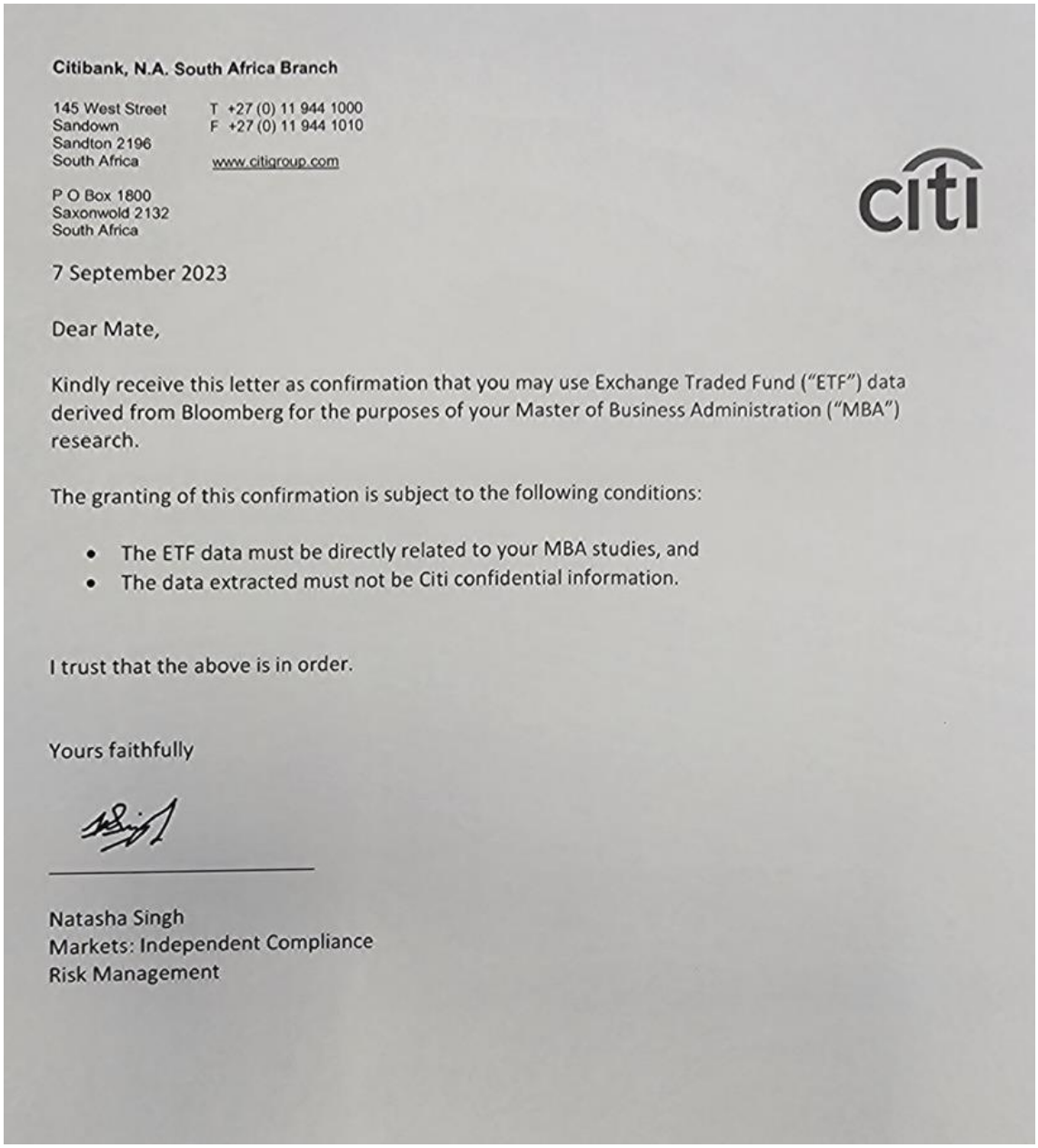
Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

Ethical Clearance Form

Kind Regards

This email has been sent from an unmonitored email account. If you have any comments or concerns, please contact the GIBS Research Admin team.

APPENDIX B: Data Access Approvals



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7 September 2023

Dear Mate,

Kindly receive this letter as confirmation that you may use Exchange Traded Fund ("ETF") data derived from Bloomberg for the purposes of your Master of Business Administration ("MBA") research.

The granting of this confirmation is subject to the following conditions:

- The ETF data must be directly related to your MBA studies, and
- The data extracted must not be Citi confidential information.

I trust that the above is in order.

Yours faithfully

Natasha Singh
Markets: Independent Compliance
Risk Management