

THE PERFORMANCE OF SOUTH AFRICAN UNIT TRUSTS FOR THE PERIOD 1984 TO 2003

By

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Master of Commerce at the University of Stellenbosch.

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DECLARATION

I, the undersigned, hereby declare that the work contained in this assignment is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

M.E. Brink



Date

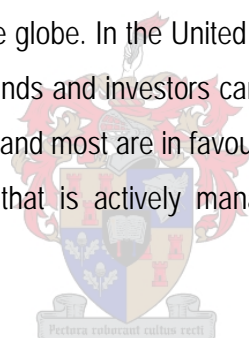
EXECUTIVE SUMMARY

Many fund managers who are supposed to have your best interest at heart have become just as greedy, have vested interests and their performance has been mediocre. Until they clean up their act, your best bet is to opt for an index fund, or the type that uses our money to track a stock market index, provided the initial and ongoing costs are low if you invest in shares.

A great many funds have been run well and conscientiously. However, it's often not clear to individuals which ones these are. In the absence of clarity, those index funds that are very low-cost are investor-friendly by definition and are the best selection for most of those who wish to own equities.

Warren Buffet

Throughout the past twenty years, investment funds have been transforming financial markets. There has been a tremendous growth in this industry and at the end of 2003 more than USD 13 trillion were invested in investment funds around the globe. In the United States, 12 percent of all money invested in mutual funds resides in index mutual funds and investors can choose from 149 index funds. Academics have researched mutual funds in depth and most are in favour of index-related funds. The reason for this is that the average US mutual fund that is actively managed does not manage to outperform its benchmark index.



In South Africa, the scenario is very different. There are currently only nine index unit trusts with a net asset value of ZAR 1.4 billion. This represents only 60 basis points of all money invested in South African unit trusts. In this study, a few factors are discussed as possible contributors to this situation, with exchange-traded funds and enhanced index fund strategies identified as the most significant factors.

This study investigates whether active unit trusts succeed in outperforming their benchmark index. It provides empirical research showing that All-Share Index have been a better risk-adjusted investment over the twenty years studied. This may be seen as a reason why investors prefer enhanced strategies since they provide a premium on the index's return, and the risk and costs are lower than for active unit trusts.

Exchange-traded funds have accumulated investments of close to ZAR 6 billion since the launch of the first Satrix fund, Satrix 40, in 2001. These funds aim at the same return as index unit trusts and have significant cost advantages over index unit trusts.

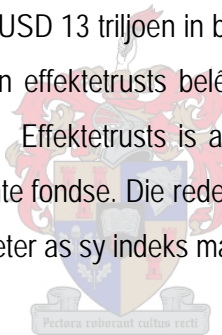
OPSOMMING

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Beleggingsfondse het tot gevolg gehad dat daar 'n drastiese verandering in finansiële markte oor die afgelope twintig jaar plaasgevind het. Daar was 'n aansienlike groei in hierdie industrie en aan die einde van 2003 was daar wêreldwyd meer as USD 13 triljoen in beleggingsfondse belê. In die Verenigde State behoort 12 persent van alle geld wat in effektetrusts belê is aan indeksfondse en beleggers het 149 indeksfondse waaruit gekies kan word. Effektetrusts is al in diepte deur akademici bestudeer en die meeste is ten gunste van indeks-verwante fondse. Die rede hiervoor is dat die gemiddelde effektetrust in die Verenigde State nie dit reg kry om beter as sy indeks maatstaf te presteer nie.



In Suid Afrika is die omstandighede heeltemal anders. Daar is huidiglik slegs nege indeksfondse met 'n netto bate waarde van ZAR 1.4 biljoen. Dit verteenwoordig slegs 60 basis punte van al die geld wat in Suid Afrikaanse effektetrusts belê is. In hierdie studie word daar 'n paar faktore bespreek wat moontlik bygedra het tot hierdie situasie. Beursverhandelde fondse en "verbeterde" indeksfondse word geïdentifiseer as die twee vernaamste faktore.

Hierdie studie kyk of aktiewe effektetrusts suksesvol was om beter te presteer as hulle maatstaf indeks. Empiriese navorsing word gegee wat wys dat die Algemene Indeks 'n beter risiko-aangepaste belegging was oor die twintig jaar van die studie. Dit kan gesien word as 'n rede hoekom beleggers "verbeterings" strategieë verkies wat 'n premie bied op die indeks se prestasie en beide die risiko en koste is laer as met aktiewe fondse.

Beursverhandelde fondse het beleggings ten bedrae van ZAR 6 biljoen opgebou sedert die begin van die eerste Satrix fonds, Satrix 40 in 2001. Hierdie fondse mik vir dieselfde opbrengs as indeks effektetrusts en het groot koste voordele bo indeksfondse.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

| | | |
|-------|--|---|
| 1.1 | Background to the study | 1 |
| 1.2 | Definitions | 2 |
| 1.3 | Objectives of the study | 3 |
| 1.4 | Basic structure of the study | 4 |
| 1.5 | Overview of the investment fund industry..... | 5 |
| 1.5.1 | The growth of the global investment fund industry | |
| 1.5.2 | The South African unit trust industry | |
| 1.5.3 | The European versus the American investment fund industry | |
| 1.5.4 | Factors that influence the demand and supply of investment funds | |
| 1.5.5 | The growth of index funds | |

CHAPTER 2: DEFINING AN INDEX, INDEX FUNDS, EXCHANGE TRADED FUNDS, ACTIVE FUNDS AND HOW THEY DIFFER

| | | |
|---------|-----------------------------------|----|
| 2.1 | Indexes | 14 |
| 2.1.1 | Defining an index | |
| 2.1.2 | Index weighting schemes | |
| 2.1.2.1 | Price-weighted method | |
| 2.1.2.2 | Value weighted series | |
| 2.1.2.3 | Unweighted-price indicator series | |

| | | |
|---------|---|-------|
| 2.2 | Index | funds |
| | | 16 |
| 2.2.1 | Defining index funds | |
| 2.2.2 | Methods used to create an index fund | |
| 2.2.3 | Active vs. passively managed funds | |
| 2.2.4 | The case for and against index funds: A South African perspective | |
| 2.2.5 | Tracking error of index funds and the problems faced by these fund managers | |
| 2.2.6 | Enhanced strategies for indexing | |
| 2.3 | Exchange traded funds | 25 |
| 2.3.1 | Background | |
| 2.3.2 | The South African and global market perspective of exchange-traded funds | |
| 2.3.3 | Satrix: The South African ETF family | |
| 2.3.3.1 | Expenses | |
| 2.3.3.2 | Satrix investment plan | |
| 2.3.3.3 | Conversion to a collective investment scheme (CIS) | |
| 2.3.3.4 | Satrix performance | |
| 2.3.4 | How exchange-traded funds differ from unit trusts | |
| 2.3.4.1 | Pricing | |
| 2.3.4.2 | Convertibility | |
| 2.3.4.3 | Full investment | |
| 2.3.4.4 | Dividend distributions | |
| 2.3.4.5 | Derivatives | |
| 2.3.4.6 | Short sales | |
| 2.3.4.7 | Investors security | |
| 2.3.5 | The tracking error differences: Index unit trusts vs. ETFs | |



| | | |
|-------|---|----|
| 3.1 | Introduction | 39 |
| 3.1.1 | Tracking error variance of index funds | |
| 3.1.2 | The persistence in the performance of unit trusts in South Africa | |
| 3.2 | Index mutual funds versus active mutual funds | 43 |
| 3.2.1 | Studies on the superior performance of index mutual funds | |
| 3.2.2 | The expense ratio issue of active funds | |
| 3.2.3 | The development of index funds | |
| 3.2.4 | Exchange-traded funds | |
| 3.3 | Summary | 50 |

CHAPTER 4: EMPIRICAL RESULTS

| | | |
|-------|---------------------------------|----|
| 4.1 | Introduction | 52 |
| 4.2 | Data and research methodology | 52 |
| 4.2.1 | Selection of the sample | |
| 4.2.2 | Data | |
| 4.2.3 | Statistical procedures | |
| 4.2.4 | Explanation of the tables | |
| 4.2.5 | Calculation of the Sharpe ratio | |
| 4.3 | Results | 57 |
| 4.3.1 | Return | |
| 4.3.2 | Standard deviation | |
| 4.3.3 | Sharpe ratio | |
| 4.3.4 | P-Values | |



4.4 Conclusion63

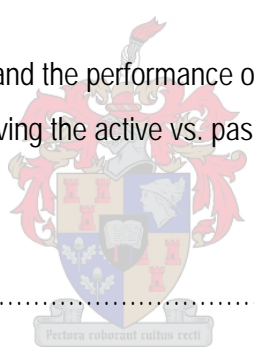
CHAPTER 5: REASONS FOR THE SLOW GROWTH OF INDEX UNIT TRUSTS IN SOUTH AFRICA

5.1 Introduction64

5.2 Reasons64

- 5.2.1 Investor sentiment
- 5.2.2 The costs of index funds
- 5.2.3 Commissions
- 5.2.4 Enhanced strategies
- 5.2.5 Marketing
- 5.2.6 Exchange-traded funds
- 5.2.7 The market conditions and the performance of active funds
- 5.2.8 Article by Gruber on solving the active vs. passive puzzle

5.3 Conclusion71



CHAPTER 6: SUMMARY, CONCLUDING REMARKS AND RECOMMENDATIONS

6.1 Introduction73

6.2 Summary73

6.3 Concluding remarks75

6.4 Recommendations77

| | |
|-----------|------|
| REFERENCE | LIST |
| | 79 |

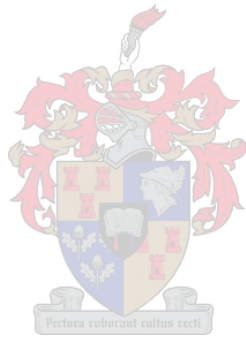
APPENDIX

| | |
|----------|------|
| Appendix | A |
| | i |
| Appendix | B(1) |
| | ii |
| Appendix | B(2) |
| | iii |

LIST OF TABLES

| | |
|--|----|
| Table 1.1: Total net assets in US dollars | 11 |
| Table 1.2: Number of Mutual funds | 12 |
| Table 1.3: Total net assets in US dollars by type of fund | 13 |
| Table 2.1: Index funds in South Africa at the end of December 2003 | 26 |
| Table 2.2: ETF's around the world at the end of December 2002 | 28 |
| Table 2.3: SATRIX 40 versus Large Cap unit trusts | 33 |
| Table 4.1: Summary for the period ended 31 December | 57 |
| Table 4.2: Unit trusts performances for the 20-year period ended 31 December | 58 |
| Table 4.3: Unit trusts performances for the 10-year period ended 31 December | 58 |
| Table 4.4: Unit trusts performances for the 5-year period ended 31 December | 59 |
| Table 4.5: Funds that underperformed against the index | 60 |
| Table 4.6: P-Values for parametric and non-parametric tests | 62 |





CHAPTER 1

INTRODUCTION

1.1 Background to the study

In this study, I deal with a significant phenomenon that has been transforming the financial markets for the past twenty years. There has been a tremendous and persistent growth in the importance of investment funds¹ in all global markets. This is true whether one measures growth by assets value, number of investment funds or the number of academic articles concerned with some aspect of the investment fund industry.

The investment fund industry forms an important constituent of every country's investment industry. At the end of 2003, more than USD 14 trillion were invested in investment funds around the world and investors could choose from more than 54 000 funds.

The growth of investment funds in the United States and other high-income countries has stimulated a large and ever-growing literature on the factors that explain their performance. Most of these studies have used the United States' mutual fund market as a base for their statistical analyses. These studies have focused on a wide range of issues related to the persistent performance of investment funds, the expenses of investment funds, exchange traded funds and the debate about active versus passive funds.

Academics also concern themselves with index investing, i.e. index funds. This has historically been the domain of large institutional portfolio managers and not of the individual investor. Index funds are gaining a wider acceptance among professional fund managers. For individual investors, however, index funds are a relatively new concept. While they may have heard of index funds, or read about them in the business media, individual investors may not always realise just how compelling and broadly based the case for index funds is.

According to Bogle (2000), in an ideal world the basis for the growth of index funds would be the gradual acceptance of the simple theory that underlies index investing, which is that investors as a group cannot

¹ Refer to 1.2 for definitions

outperform the market because they are the market. It therefore follows that investors as a group must perform below the market performance, because the costs of participation – operating expenses, advisory fees and portfolio transaction costs – represent a direct deduction from the market's return. In fact, most professional managers fail to outpace the appropriate market indices, and those who do so rarely repeat their past success.

Unit trusts are a very popular and cost effective investment vehicle for millions of South Africans. In today's uncertain world, it is important to have a pool of savings, which can grow over time and can counter the effects of inflation. Unit trusts not only make investment in the financial markets possible for small investors, but also offer an effective way for diversifying a portfolio and saving for long term goals.

Unfortunately, not much research has been done on the South African unit trust industry, particularly the performance of active unit trusts against their benchmark index. The aim of this study is to evaluate the performance of active unit trusts. Through this, I want to gain some insight into the debate about index funds versus active funds and the factors that hinder the growth of index unit trusts in South Africa.



1.2 Definitions

Unit trust: Investment companies sell shares in a fund to the public and invest the proceeds in a diversified portfolio of securities. Each share that they sell represents a proportionate interest in a portfolio of securities (unit trust). The securities purchased could be restricted to specific types of assets such as common stock, bonds or money market instruments. The investment strategies followed by investment companies range from high-risk active portfolio strategies to low-risk passive portfolio strategies. The term unit trust refers to both the term active unit trusts and index unit trust.

Mutual fund: A mutual fund is the American term for a unit trust and will be used when a reference is made to the US market.

Index unit trust: An index unit trust is structured in the same way all other unit trusts are structured; the only difference being that it is a passively managed fund that aims to produce the return of a specific market index, for example the FTSE/JSE All-Share Index.

Exchange traded fund: These funds are structured similarly to index unit trusts, with a few differences of which the major one is that they trade like stock on a stock exchange.

Index fund: An index fund will refer to both an index unit trust and an exchange traded (index) fund. These separate terms will be used when there is reference to only one of them.

Investment fund: Throughout this study, the term investment fund will be used to refer to unit trusts, mutual funds, exchange traded funds and any other similar investment products as a group.

1.3 Objectives of the study

The aim of this paper is to provide a comprehensive representation of what the global investment fund and the South African unit trust industry are currently experiencing. Specific reference will be made to active funds, index unit trusts and exchange traded funds. This paper compares and examines the benefits of investing in active and index unit trusts. The performance of active funds is evaluated over a twenty-year period to see if these funds succeed in outperforming their index benchmark.

The growth of investment funds (active funds, index funds and exchange-traded funds) is subsequently examined, as are the reasons why South African investors have not been as inclined to index unit trusts as investors in the United States have been.

1.4 Basic structure of the study

Chapter 1 provides a background to the study and defines the research objective. In the rest of the chapter, I will provide an overview of the investment fund industry, including the growth of the global investment fund industry, the growth of index funds and the factors that influence the demand and supply of investment funds. I will also provide an overview of the South African unit trust industry and compare the American and European fund industries.

Chapter 2 will define an index and index fund, discuss the methods of weighting an index and creating an index fund. The basic differences between an index unit trust and an exchange-traded fund will be discussed. I will then compare actively and passively managed unit trusts and the different strategies

used by both. Index funds will be discussed from a South African perspective, as well as the problems that fund managers face with tracking error and the enhanced strategies some of them use. Exchange-traded funds will be looked at with reference to exchange-traded funds in the South African and global market. I will also explain Satrix and the advantages of exchange-traded index funds over index unit trusts.

Chapter 3 gives a review of all the literature that is relevant to this topic. The South African literature deals with tracking error and the persistence in the performance of unit trusts. The international literature mainly focuses on the debate about index mutual funds versus active mutual funds, looking particularly at the performance of these funds and their expense ratios. The development of both index funds and exchange-traded funds is discussed.

Chapter 4, consisting of the empirical results of the study, represents its core. The first part of this chapter deals with the data and methodology. This includes the data selection, sampling and the statistical procedures that were used in the analysis. In the second part of this chapter, the results from the empirical study will be analysed and discussed.

Chapter 5 provides the reasons for the slow growth of index unit trusts in South Africa and explains why investors prefer active funds. This discussion will cover investor sentiment, expenses, commissions, enhanced strategies, marketing, exchange-traded funds and the performance of active unit trusts.

Chapter 6 summarises and concludes the study, and it provides recommendations for future research.

1.5 Overview of the investment fund industry

1.5.1 The growth of the global investment fund industry

One of the most interesting financial phenomena of the 1990s was the explosive growth in investment funds. Investment fund assets worldwide rose from USD 9 trillion in 1998 to USD 13.96 trillion at the end of 2003, according to the information compiled by FEFSI and the Investment Company Institute on behalf of the International Investment Funds Association, an organisation of national investment fund associations.

This explosive growth is particularly true for the United States where the total net assets of mutual funds grew from USD 1.6 trillion in 1992 to USD 7.41 trillion at the end of 2003. (See table 1.1 for the investment funds net asset values of all the different countries.) Europe witnessed an increase in the total net asset value of their investment fund industry from USD 1 trillion in 1992 to USD 4.59 trillion in 2003. In Europe, three countries (France, Luxembourg and Italy) dominated the European investment fund industry with a market share of 59 percent at the end of 2003. The United Kingdom and Ireland followed in this ranking in fourth and fifth place.²

There are over 54 000 investment funds globally; 8 000 of which belong to the United States, whereas the whole of Europe has almost 28 000 different funds. (See table 1.2 for a depiction of the number of funds per country.) As can be seen in table 1.3, equity funds seem to be the popular choice in view of the fact that forty percent of worldwide assets that are invested in investment funds reside in equity funds.

These increases in the investment fund industry can be seen in most of the world with the exception of a few countries, particularly in Asia.

Among Anglo-American countries, which generally have well-developed securities markets and common law traditions, Australia, New Zealand and South Africa are notable for their relatively underdeveloped investment fund industries with total assets around 10 percent of gross domestic product. However, in all three countries investment funds experienced a considerable growth during the 1990s. The presence of a well-developed contractual savings industry in South Africa is clearly a relevant factor (Klapper et. al., [S.a.]:13).

According to (Klapper et. al. [S.a.]:1), this global growth of mutual funds was fuelled by the increasing globalisation of finance, by the expanding presence of large multinational financial groups in a large number of countries, and by the strong performance of equity and bond markets throughout most of the 1990s. Investors definitely look for financial instruments that are safe and liquid, but also promise high long-term returns.

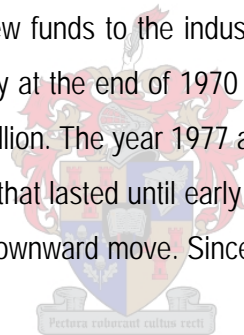
1.5.2 The South African unit trust industry

² Source of data: Delbeque, B. 2004. Available: www.fefsi.org. FEFSI provides data for all European countries except Romania, Russia and Turkey. Data at the end of December 2003.

The unit trust industry of South Africa had its beginning on June 14, 1965 when the Sage Group launched Sage Fund, South Africa's first unit trust. Unit trusts were identified as an effective mechanism with which a diversified portfolio of growth assets (listed shares) could be profitably marketed to the public. This provided South Africans with a vehicle with which to invest in a diverse and professionally managed investment portfolio.

By the end of 1966, the total assets of the four funds in existence amounted to ZAR 24 million. The total assets of the unit trusts, now six funds, passed the ZAR 100 million mark during the first quarter of 1968 and it was speculated that the ZAR 200 million mark will be exceeded by the end of 1968. The growth of this industry took on such proportions that speculations in the first quarter of 1969 were that the industry would exceed the ZAR 1000 million mark by the end of 1969. However, from the middle of May 1969 to the middle of July the share prices dropped by 32 percent. This led to many years in which the unit trust industry suffered. Early in the 1970s, the unit trust industry was on the brink of ten lean years.

Throughout the 1970s, the inflow of new funds to the industry never exceeded the outflow every year. The total net asset value of the industry at the end of 1970 amounted to ZAR 532 million. Seven years later in 1977 the value was ZAR 268 million. The year 1977 also stands out as the start of the upswing in share prices and the unit trust industry that lasted until early 2000, when the JSE, and many other stock markets, entered a severe three-year downward move. Since April 2003, the markets have recovered by approximately forty percent.



This industry has proved very popular and has experienced immense growth from only eight unit trust funds in 1980 to 466 publicly listed funds at the end of 2003. The total net asset value of the South African unit trust industry increased from USD 4.52 billion in 1992 to USD 34.5 billion (ZAR 230 billion) at the end of 2003.³

1.5.3 The European versus the American investment fund industry

Otten and Schweitzer (1998) compare the US and European investment fund industries and find that the European fund industry is lagging behind the American industry with regard to total assets, average fund size and capital market importance.

³ www.fefsi.org

European investors prefer fixed-income funds, while investment fund markets in individual European countries are dominated by a few large domestic groups, mostly bank-centred, possibly implying a lower level of competition.

1.5.4 Factors that influence the demand and supply of investment funds

In general, the same factors that influence the demand for investment funds also shape their supply. For instance, the level of income and wealth is, or should be, a major determinant of the demand for investment fund investments, but income and wealth also affect the supply of such services through their effect on market infrastructure and the presence of skilled professionals. Similarly, securities market development is an important factor in stimulating the demand side and helps to promote the supply of investment fund services. The availability or shortage of suitable financial instruments is a constraining factor for the growth of investment funds in many countries. Tax rules also tend to have a large impact. South Africa has a very lenient tax system when it comes to unit trusts.

Equity funds and the demand for equity investments more generally are likely to be negatively affected by high real interest rates on bonds and bank deposits. If investors can earn high real returns on less volatile instruments, they would be less likely to invest in equities and equity funds. However, if real returns on equity funds are much higher than real interest rates, and if the volatility of equity returns were not particularly high, then equity funds would benefit. The development of equity funds in developing countries appears to be driven by market liquidity.

Investment funds are more advanced in countries with better developed and more stable capital markets, which reflect the investor confidence in market integrity, liquidity, profitability and a greater supply of investable securities. (Klapper et. al., [S.a.]:16-21).

1.5.5 The growth of index funds

Mr. Charles Dow created the first and consequently most widely known index in May of 1896. At that time, the Dow index contained 12 of the largest public companies in the United States. Today, the Dow Jones Industrial Average (DJIA) contains 30 of the largest and most influential companies in the U.S.

With growing cynicism concerning the success and the cost of active portfolio management, index funds have gained popularity. More than USD 1.5 trillion⁴ are invested in index funds in the United States. The United States had 8 126 mutual funds at the end of 2003, of which about 149 were index mutual funds. More than 80 mutual fund firms in the US now offer an S&P 500 index fund, of which Vanguard's S&P 500 index funds still have the biggest net asset value. Vanguard's S&P 500 index fund has a net asset value of USD 94 billion and is the largest single investment fund in the world.

At the end of 2003, the ZAR 230 billion unit trust industry of South Africa consisted of 466 funds of which nine are index unit trusts (Market value of ZAR 1.4 billion⁵).

From these figures we can see that the South African unit trust industry is lagging behind the American mutual fund industry in the ratio of passive to active funds. In the United States, 12 percent of the mutual fund industry is invested in index funds, whereas in South Africa sixty basis points of the assets invested in unit trusts are invested in index funds.

In comparison to the world, South Africa has not only experienced a delayed and slow growth in their unit trust industry, but also in the growth of index funds. Although there are different reasons for the slower growth of index funds, the slow growth of index funds in South Africa can also be said to be correlated with the slow growth of unit trust. The growth of the unit trust sector, like any other sector of economic activity, is the result of the interaction of demand and supply.

The JSE Securities Exchange launched South Africa's first exchange-traded index trackers (SATRIX), starting with one fund in the fourth quarter of 2000 and two more funds in 2002. Currently there are four exchange-traded funds in South Africa that seem to be gaining more popularity than index unit trusts.

⁴ Twelve percent of money invested in US mutual funds resides in index funds.

⁵ According to Woods (2004), there is ZAR 1.4 billion invested in all the index unit trusts in South Africa.

Table 1.1 Total net assets in US dollars

Millions, end of period

| COUNTRY | 1999 | 2000 | 2001 | 2002 | 2003 | | | |
|--------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | | | | Q1 | Q2 | Q3 | Q4 |
| World | 11,391,138 | 11,871,061 | 11,654,904 | 11,324,130 | 11,222,825 | 12,383,205 | 12,830,699 | 13,957,564 |
| Americas | 7,264,471 | 7,424,146 | 7,433,144 | 6,776,291 | 6,664,800 | 7,292,410 | 7,450,424 | 7,969,224 |
| Argentina | 6,990 | 7,425 | 3,751 | 1,021 | 1,124 | 1,315 | 1,692 | 1,916 |
| Brazil | 117,758 | 148,538 | 148,189 | 96,729 | 114,148 | 143,793 | 155,651 | 171,596 |
| Canada | 269,825 | 279,511 | 267,863 | 248,979 | 251,760 | 290,194 | 302,389 | 338,369 |
| Chile | 4,091 | 4,597 | 5,090 | 6,705 | 5,526 | 6,143 | 7,078 | 8,552 |
| Costa Rica | 919 | 1,577 | 1,738 | 1,738 | 1,911 | 2,168 | 2,598 | 2,754 |
| Mexico | 19,468 | 18,488 | 31,722 | 30,759 | 27,794 | 35,594 | 32,988 | 31,953 |
| United States | 6,846,339 | 6,964,667 | 6,974,951 | 6,390,360 | 6,262,537 | 6,813,203 | 6,948,028 | 7,414,084 |
| Europe | 3,203,401 | 3,296,015 | 3,167,963 | 3,463,000 | 3,467,434 | 3,901,474 | 4,091,574 | 4,592,582 |
| Austria | 56,254 | 56,549 | 55,211 | 66,877 | 70,796 | 77,709 | 80,745 | 87,982 |
| Belgium | 65,461 | 70,313 | 68,661 | 74,983 | 75,060 | 83,713 | 86,487 | 98,724 |
| Czech Republic | 1,473 | 1,990 | 1,778 | 3,297 | 3,711 | 4,118 | 3,861 | 4,083 |
| Denmark ² | 27,558 | 32,485 | 33,831 | 40,153 | 35,437 | 39,870 | 42,712 | 49,533 |
| Finland | 10,318 | 12,698 | 12,933 | 16,516 | 19,171 | 22,753 | 24,432 | 29,967 |
| France | 656,132 | 721,973 | 713,378 | 845,147 | 906,246 | 993,463 | 1,032,833 | 1,148,446 |
| Germany | 237,312 | 238,029 | 213,662 | 209,168 | 210,235 | 239,734 | 247,649 | 276,319 |
| Greece | 36,397 | 29,154 | 23,888 | 26,621 | 28,798 | 33,403 | 34,921 | 38,394 |
| Hungary | 1,725 | 1,953 | 2,260 | 3,992 | 4,648 | 4,551 | 4,528 | 3,936 |
| Ireland | 95,174 | 137,024 | 191,840 | 250,116 | 256,583 | 297,351 | 309,478 | 360,425 |
| Italy | 475,661 | 424,014 | 359,879 | 378,259 | 392,684 | 432,266 | 444,904 | 478,734 |
| Liechtenstein | | | | 3,847 | 3,742 | 7,578 | 8,078 | 8,936 |
| Luxembourg | 661,084 | 747,117 | 758,720 | 803,869 | 816,446 | 912,738 | 976,311 | 1,104,112 |
| Netherlands | 94,539 | 93,580 | 79,165 | 84,211 | | | | |
| Norway | 15,107 | 16,228 | 14,752 | 15,471 | 14,610 | 16,792 | 18,271 | 21,994 |
| Poland | 762 | 1,546 | 2,970 | 5,468 | 6,060 | 7,499 | 8,361 | 8,576 |
| Portugal | 19,704 | 16,588 | 16,618 | 19,969 | 20,775 | 22,580 | 24,001 | 26,985 |
| Romania | 8 | 8 | 10 | 27 | 29 | 29 | 30 | 36 |
| Russia | 177 | 177 | 297 | 372 | 432 | 613 | 737 | 851 |
| Spain | 207,603 | 172,438 | 159,899 | 179,133 | 191,297 | 212,061 | 229,457 | 255,344 |
| Sweden | 83,250 | 78,085 | 65,538 | 57,992 | 58,545 | 69,729 | 76,129 | 87,746 |
| Switzerland ³ | 82,512 | 83,059 | 75,973 | 82,622 | 73,978 | 83,032 | 84,166 | 90,772 |
| Turkey | | | | 6,002 | 6,438 | 9,073 | 11,475 | 14,164 |
| United Kingdom | 375,199 | 361,008 | 316,702 | 288,887 | 271,715 | 330,816 | 342,009 | 396,523 |
| Asia and Pacific | 905,030 | 1,133,979 | 1,039,236 | 1,063,857 | 1,068,457 | 1,163,626 | 1,259,272 | 1,361,298 |
| Australia | | 341,955 | 334,016 | 356,304 | 377,281 | 433,600 | 456,611 | 518,411 |
| Hong Kong | 182,265 | 195,924 | 170,073 | 164,322 | 175,353 | 201,145 | 216,652 | 255,811 |
| India | 13,065 | 13,507 | 15,284 | 20,364 | 15,814 | 21,522 | 25,858 | 29,800 |
| Japan | 502,752 | 431,996 | 343,907 | 303,191 | 291,261 | 297,769 | 333,682 | 349,148 |
| Korea, Rep. of | 167,177 | 110,613 | 119,439 | 149,544 | 136,258 | 133,762 | 143,336 | 121,488 |
| New Zealand | 8,502 | 7,802 | 6,564 | 7,505 | 7,705 | 8,364 | 8,590 | 9,641 |
| Philippines | 117 | 108 | 211 | 474 | 538 | 632 | 723 | 792 |
| Taiwan | 31,153 | 32,074 | 49,742 | 62,153 | 64,246 | 66,832 | 73,820 | 76,205 |
| Africa | 18,235 | 16,921 | 14,561 | 20,983 | 22,133 | 25,695 | 29,428 | 34,460 |
| South Africa | 18,235 | 16,921 | 14,561 | 20,983 | 22,133 | 25,695 | 29,428 | 34,460 |

Note: Components may not sum to total because of rounding.
Source: National mutual fund associations; Fédération Européenne des Fonds et Sociétés d'Investissement (FEFSI) provides data for all European countries except Romania, Russia, and Turkey.
¹ Funds of funds are not included. Home-domiciled funds, except for Hong Kong, Korea, and New Zealand, which include home- and foreign-domiciled funds.
² Before 2003, data include special funds reserved to institutional investors.
³ Data coverage is partial for 2003:Q1.

Table 1.2 Number of mutual funds

End of period

| COUNTRY | 1999 | 2000 | 2001 | 2002 | 2003 | | | |
|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | | | | | Q1 | Q2 | Q3 | Q4 |
| World | 52,746 | 51,692 | 52,849 | 54,110 | 53,454 | 53,847 | 54,120 | 54,015 |
| Americas | 11,499 | 12,676 | 13,449 | 13,884 | 13,947 | 13,930 | 14,007 | 13,921 |
| Argentina | 224 | 226 | 219 | 211 | 196 | 195 | 195 | 186 |
| Brazil | 1,760 | 2,097 | 2,452 | 2,755 | 2,749 | 2,714 | 2,762 | 2,805 |
| Canada | 1,328 | 1,627 | 1,831 | 1,956 | 1,977 | 1,975 | 1,922 | 1,887 |
| Chile | 116 | 144 | 177 | 226 | 339 | 356 | 379 | 414 |
| Costa Rica | | 122 | 115 | 128 | 126 | 130 | 128 | 129 |
| Mexico | 280 | 305 | 350 | 364 | 364 | 372 | 378 | 374 |
| United States | 7,791 | 8,155 | 8,305 | 8,244 | 8,196 | 8,188 | 8,243 | 8,126 |
| Europe | 22,095 | 25,524 | 26,821 | 28,972 | 27,960 | 28,028 | 27,978 | 27,987 |
| Austria | 693 | 760 | 769 | 808 | 814 | 822 | 822 | 833 |
| Belgium | 784 | 918 | 1,041 | 1,141 | 1,146 | 1,149 | 1,146 | 1,224 |
| Czech Republic | 62 | 70 | 65 | 76 | 77 | 78 | 61 | 58 |
| Denmark ² | 292 | 394 | 451 | 485 | 442 | 398 | 394 | 400 |
| Finland | 176 | 241 | 275 | 312 | 318 | 321 | 327 | 329 |
| France | 6,511 | 7,144 | 7,603 | 7,773 | 7,782 | 7,848 | 7,884 | 7,902 |
| Germany | 895 | 987 | 1,077 | 1,092 | 1,077 | 1,074 | 1,070 | 1,050 |
| Greece | 208 | 265 | 269 | 260 | 260 | 259 | 263 | 265 |
| Hungary | 87 | 86 | 89 | 90 | 91 | 93 | 88 | 96 |
| Ireland | 1,060 | 1,344 | 1,640 | 1,905 | 1,945 | 1,958 | 1,969 | 1,978 |
| Italy | 816 | 967 | 1,059 | 1,073 | 1,054 | 1,064 | 1,019 | 1,012 |
| Liechtenstein | | | | 111 | 112 | 128 | 130 | 137 |
| Luxembourg | 5,023 | 6,084 | 6,619 | 6,874 | 6,814 | 6,715 | 6,673 | 6,578 |
| Netherlands | 348 | 494 | | 680 | | | | |
| Norway | 309 | 380 | 400 | 419 | 390 | 390 | 390 | 375 |
| Poland | 62 | 77 | 94 | 107 | 105 | 107 | 110 | 112 |
| Portugal | 214 | 195 | 202 | 170 | 168 | 169 | 165 | 160 |
| Romania | | 16 | 24 | 20 | 22 | 22 | 22 | 21 |
| Russia | 27 | 37 | 51 | 57 | 71 | 94 | 109 | 132 |
| Spain | 2,150 | 2,422 | 2,524 | 2,466 | 2,469 | 2,494 | 2,502 | 2,471 |
| Sweden | 412 | 509 | 507 | 512 | 514 | 513 | 497 | 485 |
| Switzerland ³ | 348 | 368 | 313 | 512 | 330 | 390 | 413 | 441 |
| Turkey | | | | 242 | 236 | 237 | 241 | 236 |
| United Kingdom | 1,618 | 1,766 | 1,749 | 1,787 | 1,723 | 1,705 | 1,683 | 1,692 |
| Asia and Pacific | 18,892 | 13,158 | 12,153 | 10,794 | 11,081 | 11,414 | 11,653 | 11,641 |
| Australia | | | | | | | | |
| Hong Kong | 832 | 976 | 952 | 942 | 1,003 | 986 | 972 | 963 |
| India | 155 | 234 | 297 | 312 | 329 | 329 | 342 | 350 |
| Japan | 3,444 | 2,793 | 2,867 | 2,718 | 2,642 | 2,628 | 2,602 | 2,617 |
| Korea, Rep. of | 13,606 | 8,242 | 7,117 | 5,873 | 6,144 | 6,516 | 6,767 | 6,726 |
| New Zealand | 622 | 607 | 588 | 577 | 578 | 562 | 564 | 563 |
| Philippines | 15 | 18 | 20 | 21 | 21 | 22 | 22 | 21 |
| Taiwan | 218 | 288 | 312 | 351 | 364 | 371 | 384 | 401 |
| Africa | 260 | 334 | 426 | 460 | 466 | 475 | 482 | 466 |
| South Africa | 260 | 334 | 426 | 460 | 466 | 475 | 482 | 466 |

Source: National mutual fund associations; Fédération Européenne des Fonds et Sociétés d'Investissement (FEFSI) provides data for all European countries except Romania, Russia, and Turkey.

¹ Funds of funds are not included. Home-domiciled funds, except for Hong Kong, Korea, and New Zealand, which include home- and foreign-domiciled funds.

² Before 2003, data include special funds reserved to institutional investors.

³ Data coverage is partial for 2003:Q1.

Table 1.3 Total net assets in US dollars by type of fund

Millions, end of period

| COUNTRY | Total | Equity | Bond | Money Market | Balanced/Mixed | Other |
|-------------------------|-------------------|------------------|------------------|------------------|------------------|----------------|
| World | 13,957,564 | 5,881,999 | 3,010,166 | 3,205,495 | 1,201,446 | 298,032 |
| Americas | 7,969,224 | 3,870,656 | 1,410,195 | 2,104,741 | 545,875 | 37,758 |
| Argentina | 1,916 | 363 | 147 | 1,340 | 66 | |
| Brazil | 171,596 | 11,946 | 101,258 | 4,850 | 51,331 | 2,212 |
| Canada | 338,369 | 168,608 | 34,938 | 42,033 | 57,470 | 35,320 |
| Chile | 8,552 | 456 | 3,982 | 3,620 | 268 | 227 |
| Costa Rica | 2,754 | 4 | 2,284 | 465 | | |
| Mexico | 31,953 | 4,480 | 26,669 | 747 | 57 | |
| United States | 7,414,084 | 3,684,799 | 1,240,917 | 2,051,685 | 436,684 | |
| Europe | 4,592,582 | 1,430,061 | 1,290,849 | 851,336 | 584,797 | 75,111 |
| Austria | 87,982 | 14,542 | 57,037 | 6,930 | 9,474 | |
| Belgium | 98,724 | 59,260 | 12,073 | 2,381 | 24,980 | 30 |
| Czech Republic | 4,083 | 122 | 1,017 | 1,933 | 1,011 | |
| Denmark | 49,533 | 13,805 | 35,169 | 3 | 556 | |
| Finland | 29,967 | 10,973 | 4,537 | 10,564 | 3,894 | |
| France | 1,148,446 | 269,777 | 206,627 | 414,896 | 257,147 | |
| Germany | 276,319 | 121,480 | 85,612 | 49,171 | 17,753 | 2,301 |
| Greece | 38,394 | 6,129 | 8,260 | 19,939 | 4,064 | |
| Hungary | 3,936 | 369 | 2,647 | 838 | 82 | |
| Ireland | 360,425 | | | | | |
| Italy | 478,734 | 94,465 | 190,279 | 121,412 | 72,577 | |
| Liechtenstein | 8,936 | 4,143 | 2,161 | 1,984 | 649 | |
| Luxembourg | 1,104,112 | 356,182 | 497,561 | 97,203 | 82,260 | 70,905 |
| Netherlands | | | | | | |
| Norway | 21,994 | 10,586 | 3,183 | 7,399 | 826 | |
| Poland | 8,576 | 667 | 4,341 | 1,484 | 2,083 | |
| Portugal | 26,985 | 1,973 | 11,280 | 11,711 | 1,961 | 61 |
| Romania | 36 | 1 | 35 | | | |
| Russia | 851 | 573 | 71 | 0 | 207 | |
| Spain | 255,344 | 76,538 | 74,107 | 73,081 | 31,619 | |
| Sweden | 87,746 | 58,952 | 5,813 | 6,908 | 14,308 | 1,764 |
| Switzerland | 90,772 | 34,114 | 19,048 | 11,698 | 25,913 | |
| Turkey | 14,164 | 178 | 2,902 | 8,640 | 2,394 | 50 |
| United Kingdom | 396,523 | 295,233 | 67,089 | 3,163 | 31,037 | |
| Asia and Pacific | 1,361,298 | 570,732 | 305,864 | 237,516 | 66,287 | 180,898 |
| Australia | 518,411 | 189,192 | 44,511 | 109,646 | | 175,062 |
| Hong Kong | 255,811 | 158,981 | 60,901 | 14,864 | 19,388 | 1,677 |
| India | 29,800 | 4,691 | 15,514 | 7,107 | 846 | 1,644 |
| Japan | 349,148 | 199,024 | 109,552 | 40,573 | | |
| Korea, Rep. of | 121,488 | 7,840 | 9,874 | 64,676 | 39,098 | |
| New Zealand | 9,641 | 1,574 | 1,726 | 651 | 3,314 | 2,376 |
| Philippines | 792 | 20 | 736 | 0 | 36 | |
| Taiwan | 76,205 | 9,411 | 63,050 | | 3,606 | 138 |
| Africa | 34,460 | 10,550 | 3,258 | 11,901 | 4,487 | 4,265 |
| South Africa | 34,460 | 10,550 | 3,258 | 11,901 | 4,487 | 4,265 |

Note: Components may not sum to total because of rounding or unclassified funds.
Source: National mutual fund associations; Fédération Européenne des Fonds et Sociétés d'Investissement (FEFSI) provides data for all European countries except Romania, Russia, and Turkey.
¹ Funds of funds are not included. Home-domiciled funds, except for Hong Kong, Korea, and New Zealand, which include home- and foreign-domiciled funds.

CHAPTER 2

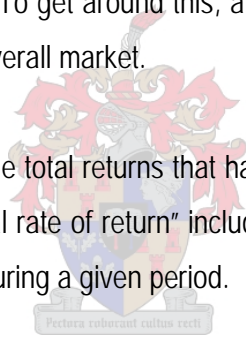
DEFINING AN INDEX, INDEX FUNDS, EXCHANGE TRADED FUNDS, ACTIVE FUNDS AND HOW THEY DIFFER

2.1 Indexes

2.1.1 Defining an index

When an investor refers to “the market”, he is referring to an index on a country’s stock exchange, for example the All-Share Index (ALSI) on the Johannesburg Stock Exchange (JSE). An index can be defined as “a statistical measure of the changes in a portfolio of stocks representing a portion of the overall market”. The reason behind this is that it would be too difficult to track every security that is trading on a country’s stock exchange. To get around this, a smaller sample of the market, the index, is taken to provide a presentation of the overall market.

An index is a quantitative measure of the total returns that have been earned by the underlying group of securities over a fixed period. This “total rate of return” includes any dividends or interest received, plus the change in the price of the security during a given period.



2.1.2 Index weighting schemes

Three principal weighting schemes are used to determine the weight given to each stock in the index sample. These are the price-weighted, value-weighted and unweighted methods.

2.1.2.1 Price-weighted method

The best-known price-weighted series is also the oldest and certainly the most popular stock market indicator series, the Dow Jones Industrial Average (DJIA). The DJIA is computed by totalling the current prices of the thirty stocks and dividing the sum by a divisor that has been adjusted to take account of

stock splits and changes in the sample over time. The divisor is adjusted so that the index value will be the same before and after the split. The divisor also changes in the rare instances of a change in the constituent parts of the series. Because the series is price weighted, a high-priced stock carries more weight than a lower priced stock.

2.1.2.2 Value weighted series

This method is used to calculate the All-Share Index. First, the initial market value of all stocks used in the series is calculated. The market value equals the number of shares outstanding multiplied by the current market price of the shares. The index value represents the total market value of all companies within the index at a particular point in time compared to a comparable calculation at the starting point.

The weekly index value is calculated by dividing the total market value of all constituent companies by a number called the divisor. This initial figure is typically established as the base and assigned an index value. Subsequently, a new market value is computed for all securities in the index and the current market value is compared to the initial "base" value to determine the percentage of change, which in turn is applied to the beginning index value. There is an automatic adjustment for stock splits and other capital changes with a value-weighted index because the decrease in the stock price is offset by an increase in the number of shares outstanding. In a value-weighted index, the importance of individual stocks in the sample depends on the market value of the stocks.

2.1.2.3 Unweighted-price indicator series

In an unweighted index, all stocks carry equal weight regardless of their price or market value. The actual movement in the index is typically based on the arithmetic average of the percent change in price or value of the stocks in the index. The use of percentage price change means that the price level or the market value of the stock does not make a difference – each percentage change has equal weight.

2.2 Index funds

2.2.1 Defining index funds

Index fund portfolios are investment funds that are established to replicate and match the performance of a major market index such as the All Share Index. These vehicles thus provide a way for individual and institutional investors to closely match the performance of an index at a minimal amount of expense. Although very low, all index funds underperform against the index they track by an amount equal to their annual expense charge. The fund buys shares in securities included in a particular index in proportion to the securities representation in that index. Investment in an index fund is thus a low cost way for small investors to pursue a passive investment strategy.

The two types of index funds that will be discussed are index unit trusts and exchange-traded funds. Exchange-traded funds, or ETFs, are index funds that are traded on a stock exchange. In contrast, an index unit trust has to be purchased either through a broker or directly from the company that manages it.

The successful management of index funds rely on constant re-balancing to bring the constituent parts in line with the benchmark index. However, practical constraints, such as cash flows, transaction costs, liquidity differences among stocks and short-term market inefficiency, can inhibit a fund manager's ability to perfectly track an index.

2.2.2 Methods used to create an index fund

Indexing is the structuring of a passively managed portfolio of stocks or bonds that seeks to replicate the returns of market indices. A pure index fund is a portfolio that is managed to perfectly replicate the performance of the market portfolio, but the market portfolio in reality can not be known with certainty. Once the index fund manager has selected the index benchmark, he has to consider the method of constructing the representative replicating portfolio (Reilly & Brown, 1999: 904). The objective in constructing the replicating portfolio is to minimise the difference in performance between the index fund and the benchmark.

Indexing can take place in two principal forms. First, it can be accomplished through the physical replication of securities in an index. This can be done either in the form of exact matching or in simpler close approximations with methods such as "stratified sampling". Second, indexing can be accomplished by using derivative contracts that seek to replicate the returns and not the holdings of an index.

When exact matching is not used for the construction of the index fund, one of the following methods can be used to closely replicate the index:

- Capitalisation method

With the capitalisation method, the manager purchases a number of the largest capitalisation stocks in the index stock issues and equally distributes the residual stock weighting across the index. For example, if the top forty highest capitalisation stock issues are selected for the replicating portfolio and these issues account for 85 percent of the total capitalisation of the index, the remaining fifteen percent is evenly proportioned among the other stock issues.

- Stratified method

The first step in using this method is to define a factor by which the stocks that make up an index can be categorised. A typical factor is industry sector. Other factors might include risk characteristics such as beta or capitalisation levels. The use of two characteristics would add a second dimension to the stratification. In the case of industry sectors, each company in the index is assigned to an industry. This means that the companies in the index have been stratified by industry. The objective of this method is to reduce residual risk by diversifying across industry sectors in the same proportion as the benchmark. Stock issues within each industry sector can then be selected randomly or by some other method, such as capitalisation ranking, valuation or optimisation.

- Quadratic optimisation method

The final method uses a quadratic optimisation procedure to generate an efficient set of portfolios. This same procedure is used to generate the Markowitz efficient set. The efficient set includes minimum variance portfolios for different levels of expected returns. The investor can select a portfolio among the set that satisfies the money manager's risk tolerance.

2.2.3 Active vs. passively managed funds

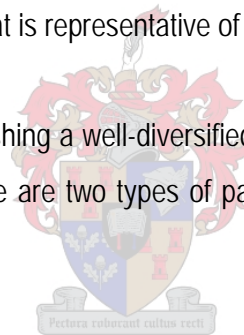
Most investment funds can be categorised as active funds. Active management involves the art of stock picking and market timing to perform better than the market. Because active funds require more hands-

on research and experience higher volumes of trading, their expenses are higher. Passive (index) funds do not attempt to outperform the market. A passive strategy instead seeks to match the risk and return of the stock market or a segment of it.

The investing theory known as the Efficient Market Hypothesis states that all markets are efficient and that it is impossible for investors to gain above normal returns because all relevant information that may affect a stock's price is already incorporated within its price.

Investors who believe that the market is sufficiently price efficient, based on the efficient market hypotheses, believe that active management is largely a wasted effort and unlikely to justify the expenses incurred. Therefore, they advocate a passive investment strategy that does not attempt to outsmart the market. According to the capital market theory, in an efficient market, the "market portfolio" offers the highest level of return per unit of risk because it captures the efficiency of the market. The theoretical market portfolio is a capitalisation-weighted portfolio of all risky assets. As a proxy for the theoretical market portfolio, an index that is representative of the market should be used.

A passive strategy aims only at establishing a well-diversified portfolio of securities without attempting to find under- or overvalued stocks. There are two types of passive strategies: the buy and hold strategy and index fund management.



The first, the buy and hold strategy, is quite simple. The efficient market theory indicates that stock prices are at fair levels; given all available information, it makes no sense to buy and sell securities frequently, which generate large brokerage fees without increasing expected performance. It is preferable to buy a portfolio of stocks based on a specified criterion and hold those stocks over a set investment horizon. There is no active buying and selling of stocks once the portfolio has been created.

The second approach, and the one more commonly followed, is index fund management, popularly referred to as indexing. With this approach, the money manager does not attempt to identify undervalued or overvalued stock issues based on fundamental security analysis. Nor does the money manager attempt to forecast general movements in the stock market and then structure the portfolio to take advantage of those movements. Instead, an indexing strategy involves designing a portfolio to track the total return performance of an index of stocks. Investors in this fund obtain broad diversification with relatively low management fees. The fees can be kept at a minimum because there is no need to pay analysts to assess stock prospects and does not incur transaction costs from high portfolio turnover.

There are two types of active management strategy. The first strategy is market timing in which the percentage of the portfolio allocated to different asset classes varies, based on the future returns they are expected to produce. The second strategy is security selection in which the percentage of the portfolio that is invested in different asset classes remains constant. However, within each asset class, securities are picked whose weighting aggregate return is expected to be higher than the return on the index for that particular asset class.

While there is evidence of pricing inefficiency, there is plenty of evidence that it is difficult to outperform the stock market consistently on a risk-adjusted basis after accounting for transaction costs. Even if a fund manager can outperform the market after adjusting for risk and transaction costs, the amount by which he outperforms the market, after adjusting for risk and transaction costs, may not be greater than the management fee.

2.2.4 The case for and against index funds: A South African perspective

The two main reasons why somebody will choose to invest in an index fund are the Efficient Market Hypothesis and the lower expense ratios of index funds. According to the Efficient Market Hypothesis, the market is assumed to be price efficient and active management is not justified by the expenses incurred. Given that the average fund manager does not have the ability to outperform the market, the average investor also does not have the ability to choose a winning fund. Therefore, some investors prefer the return of the market at the lower cost of an index fund.

The strongest argument in favour of investing in index unit trusts is the below-index returns investors receive from most active asset managers who charge a few percentage points to deliver a performance that is supposed to be better than their peers. According to academics, investors should invest a part of their savings with low-cost index managers who track the markets and invest the rest of their savings with hedge fund managers who aim to outperform the market during all cycles.

In the US, there has been enormous growth in demand for index funds. Consequently, several quantitative asset management firms, which offer a range of products from pure index funds to enhanced index funds, have brought their ideas to South Africa. The biggest turnoff for institutional investors is that index funds perform in the same way that the financial markets perform, and investors therefore experience the same difficulties that equity markets do. Proponents of index funds argue that investors

pay the fund managers generous fees to outperform the market, but few active fund managers consistently outperform the equity market indices (according to studies it is uncommon in the US). In South Africa, the market is much smaller and more concentrated, hence active managers have a better chance of beating the indices. It is however rare for a single asset manager to do so consistently over the long term.

Tony Bell, MD of Peregrine Quants, accuses local fund managers of being closet index managers. His research shows that about eighty percent of South Africa's active unit trusts are passively managed because they predominantly reflect the main indices, such as the All Share or Top 40 Index, with a few underweight or overweight positions on certain stocks (Wood, 2004b: 64).

2.2.5 Tracking error of index funds and the problems faced by these fund managers

The difference between the performance of the benchmark index and the replicating portfolio is referred to as tracking error. The performance of a portfolio is measured by its total return (dividends plus change in the market value of the portfolio). Thus, tracking error is measured as follows⁶:

Tracking error = total return on replicating portfolio – total return on benchmark

Tracking error can be positive or negative. A negative tracking error means that the replicating portfolio underperformed against the benchmark. A positive tracking error means that the replicating portfolio outperformed the benchmark. The strategy of indexing is to have a tracking error of zero, without even a positive tracking error.

While the theory and the objectives of an index strategy are both simple and well known, potential difficulties arise for index managers attempting to replicate the returns of the target benchmark exactly. A number of factors are likely to influence the magnitude of index fund tracking error, but the primary source of the problem is that the underlying index is measured as a "paper" portfolio, which assumes transactions may occur at any time without cost. Tracking error in index fund performance is therefore unavoidable given the presence of market frictions facing index managers. Therefore, the secondary objective for index managers involves managing these constraints to minimise divergence in performance from the underlying benchmark index.

⁶ Fabozzi (1999).

According to Frino and Gallagher (2001: 45), the main factors driving index fund tracking error are transaction costs, fund cash flows, dividends, benchmark volatility, corporate activity and index composition changes. These factors prevent index funds from perfectly replicating the performance of the underlying index.

It is near impossible for a portfolio's return to exactly match the return on the benchmark. Even if a replicating portfolio is designed to replicate a benchmark exactly by buying all the stock issues, tracking error will result. There are several reasons for this.

Firstly, replicating portfolios usually comprise round lots. Therefore, the number of shares of each stock in the portfolio is rounded off to the nearest hundred from the exact number of shares indicated by the computer programs that have been developed to build the optimal replicating portfolio. This rounding may affect the ability of smaller replicating portfolios to track the index accurately.

Secondly, and more importantly, the maintenance of a replicating portfolio is a dynamic process. Since most indices are capitalisation-weighted, the relative weights of individual issues are constantly changing. In addition, the stocks that compose the index often change. Thus, the cost of continually adjusting the portfolio, as well as timing differences, get in the way of an indexer's ability to track a benchmark accurately.

According to Fabozzi (1999: 257), index fund investments usually incur a smaller turnover than active strategies when the benchmark is dominated by large-capitalisation issues. Small-capitalisation stock index funds incur larger transaction costs because the stocks tend to be lower priced and less liquid. The number of stock issues in the replicating portfolio affects transaction costs, but holding fewer stock issues than contained in the benchmark generates tracking error. The trade-off between tracking error and the number of issues held must also be considered in terms of transaction costs, which increase with the number of issues traded.

Bid-ask spreads and other liquidity costs are the primary source of tracking error for index fund managers. For example, when there is a large inflow of funds, managers must invest these funds and pay fees (in the form of bid-ask spreads) to market makers. Likewise, when there are redemptions that can not be met with the cash available on hand, fund managers have to sell stocks and again incur costs. Very often, some constituent stocks of an index are illiquid, forcing managers to suffer high costs to trade in them.

The movement of cash in and out of index funds is a secondary cause of tracking error. An effect known as cash drag arises because index fund managers have to keep a certain percentage of assets that are not invested to meet redemption needs. Furthermore, because it is impossible to invest all incoming funds immediately, there is a short period when inflows remain in cash. Futures are often used to minimise cash drag, but if futures are not used or are unavailable, cash drag could become a significant source of tracking error. Critics may argue that this effect is insignificant compared to the large price movements that occur in the stock market every day. Yet, competition in the index-tracking industry is so intense that every basis point in deviation from the target index can be significant.

Another factor causing tracking error occurs in dividend policies. Some paper indices assume an immediate reinvestment on the ex-dividend date, but because index funds must wait a certain time to receive these cash dividends, there is often a short lag that contributes to tracking error. For example, if there is a timing delay between when the index incorporates the dividend (at the ex-dividend date) and the actual receipt of the dividend by the index fund (after the ex-dividend date), tracking error will be unavoidable.

The last important factor contributing to tracking error is rebalancing costs due to a change in the index composition or corporate activity. These include index adjustments related to company additions and deletions, share changes and corporate restructuring. If a company leaves an index because it merges with a different firm, for example, timing mismatches can occur between the time the company leaves the index and when the index fund is able to sell all its shares and buy the shares of the company replacing it. If corporate activity such as a spin-off drastically changes the market value of a firm, the index fund must suffer transaction costs in rebalancing its portfolio (Kostovetsky, 2003: 82).

While tracking error will be inherent in index fund performance, investors reasonably expect index fund returns will underperform against the underlying index only to the extent of the management fees charged by investment funds.

2.2.6 Enhanced strategies for indexing

If investors do not seek incremental returns, then prices will not reflect underlying fundamentals, and it thus becomes easy to add value. This dilemma has led to the growth of enhanced indexing, in which small bets are made. Performance tracks the index closely, but some risk controlled effort is made to add modest, reliable value relative to the index.

Index fund management can be extended into active management by designing well-diversified portfolios that take advantage of superior estimates of expected returns and control market risk. Such a strategy is referred to as enhanced indexing. Two methods are used to improve risk-adjusted portfolio return. The first involves creating a “tilted” portfolio, while the second utilises the futures market.

The tilted portfolio can be constructed to emphasise a particular industry sector or performance factor, for example, fundamental measures such as earnings momentum, dividend yield and price-earnings ratio. Alternatively, it can be constructed to emphasise economic factors such as interest rates and inflation. The portfolio can be designed to maintain a strong relationship with a benchmark by minimising the variance of the tracking error.

The second method involves the use of stock index futures. The introduction of index-derivative products has provided managers with the tools that, when used correctly, may be able to enhance the returns to an index fund. The replacement of stocks with undervalued futures contracts can add value to an index fund’s annualised return without incurring any significant additional risk.

The distinction between active strategies and enhanced indexing is the degree of risk control. In enhanced indexing, the focus is on risk control. The bets that are made by an enhanced indexer do not cause the portfolio’s characteristics to depart considerably from the benchmark. An active manager’s portfolio can deviate materially from the characteristics of the benchmark.

2.3 Exchange traded funds

2.3.1 Background

In November 2000, the first exchange traded fund (ETF) was listed on the JSE Securities Exchange. This was the Satrix 40 ETF, which tracks the FTSE/JSE Top 40 Index. Later, in February 2002, the Satrix INDI and Satrix FINI, which track the FTSE/JSE Industrial 25 Index and the FTSE/JSE Financial 15 Index respectively, were listed. More recently, another ETF, the NewRand security, which tracks a basket of ten rand hedge shares, was listed on the JSE.

These securities are traded on the Exchange Traded Funds sector of the JSE and have a combined market capitalisation of close to ZAR 6 billion. Accordingly, this sector of the JSE is the biggest by far, in terms of market capitalisation, of the new sectors introduced to the JSE Board in recent years.

Table 2.1 compares the assets under management by ETF funds with the index unit trust. Despite the fact that index unit trusts have been in operation for some time, the ETF industry appears to have grown at a far more rapid pace, despite its relatively short history in South Africa.

Table 2.1

| INDEX FUNDS IN SOUTH AFRICA AT THE END OF DECEMBER 2003 | |
|---|--------------------------------|
| Name of Fund | Assets under Management (ZARm) |
| Exchange Traded Funds (ETFs) | |
| Satrix 40 | 3 234.9 |
| Satrix INDI | 764.9 |
| Satrix FINI | 831.2 |
| NewRand | 977.5 |
| | <u>5 808.5</u> |
| Unit Trust Index Funds | |
| Standard Bank Index R Fund | 17.3 |
| RMB Top 40 Index Fund | 173.3 |
| Gryphon Imperial SA Tracker | 14.5 |
| Kagiso Top 40 Tracker Fund | 40.8 |
| ABSA Financial and Industrial Index Fund | 7.4 |
| Sanlam Index Fund | 681.2 |
| Investec Index R Fund | 117.4 |
| Liberty Alsi 40 Fund | 158 |
| SIS Bond Index Fund | 248.2 |
| | <u>1 458.1</u> |

Source: Unit Trust Survey, December 2003.

2.3.2 The South African and global market perspective of exchange-traded funds

Exchange-traded funds (ETFs) are a new but rapidly growing class of investment products that are typically organised as index funds. Since their creation in Canada in 1989 and shortly thereafter in the USA, exchange-traded funds have opened a new set of investment opportunities.

ETFs are listed index funds that trade as single stocks but offer exposure to all the stocks that comprise the index that the fund tracks. These new instruments enable investors to gain broad exposure to the entire stock markets of different countries and specific sectors with relative ease on a real time basis and

at a lower cost than many other forms of investing. ETFs are subject to market risk and fluctuate in value. Uniquely for fund type products, ETFs can also be used to short an index. They can be purchased on margin, are lendable and are purchased on a commission basis just like any other share.

The first US ETFs were introduced on the American Stock Exchange on January 29, 1993 and by the end of 2002, these funds represented USD 102.3 billion in assets. They currently account for around twelve percent of all index mutual fund assets in the US and are among the most actively traded shares.

At the end of 1993, there were three ETFs in world trading on two exchanges with USD 811 million in assets.⁷ At the end of 2002, globally there were 280 ETFs trading on 25 exchange platforms with 361 listings, an assets value of USD 141.6 billion and an average daily trading volume of USD 143 million (see table 5.3.1.).

Although the 2002 equity market performance was down for most major indices and the majority of traditional equity mutual funds suffered net outflows, assets invested in ETFs increased by 35 percent, from USD 104.7 billion to USD 141.6 billion.

The asset value growth came from Japanese listed ETFs, which increased 218 percent (USD 14.4 billion) to USD 21.0 billion, followed by Europe, which had a 91 percent increase in assets value (USD 5.1 billion) to USD 10.7 billion, followed by the US, which increased by 21 percent (USD 17.7 billion) to USD 102.3 billion. The assets value of the South African ETFs increased by USD 23 million to USD 554 million from 2001 to 2002.

Table 2.2

⁷ Refer to Fuhr, D. (2002 and 2003).

| ETFs AROUND THE WORLD AT END OF DECEMBER 2002 | | | | | | |
|---|--------------------------------|--------------------|--------------|------------------------------------|--------------------------|---------------------|
| Country (No. of managers) | Number of primary ETF listings | Total ETF listings | NAV (USDbn) | Change in no. primary ETF listings | Change in total listings | Change in NAV (USD) |
| ETFs | | | | | | |
| US (6) | 113 | 113 | 102.28 | 15/-3 | 15/-3 | 17.68 |
| Europe (14) | 118 | 192 | 10.69 | 47 | 100 | 5.09 |
| Japan (4) | 18 | 18 | 21 | 10 | 10 | 14.4 |
| Canada (3) | 16 | 16 | 2.88 | 1/-1 | 1/-1 | -0.42 |
| Korea (4) | 4 | 4 | 0.31 | 4 | 4 | 0.314 |
| Australia (1) | 3 | 3 | 0.23 | 1 | 1 | 0.1 |
| South Africa (1) | 3 | 3 | 0.554 | 2 | 2 | 0.24 |
| Hong Kong (2) | 2 | 4 | 3.09 | 0 | 0 | -0.51 |
| India (1) | 1 | 1 | 0.002 | 1 | 1 | 0.002 |
| Israel (1) | 1 | 1 | 0.34 | 0 | 0 | -0.17 |
| Singapore (1) | 1 | 6 | 0.18 | 1 | 1 | 0.184 |
| ETF Total (28) | 280 | 361 | 141.6 | 82/-4 | 135/-4 | 36.92 |

Source: Morgan Stanley Research and Bloomberg. Data as of December 31, 2002. Note: A minus indicates an ETF that has been delisted.

During 2002, there were 82 new ETFs launched, down slightly from 2001 when 110 new ETFs were launched. Europe had the largest number of new product launches (47, which is an increase of 66 percent) and accounted for all 53 cross-listings during the year, followed by the US with fifteen new product launches and Japan with ten. Of the 110 new ETFs launched during 2001, 21 were listed in the US while 89 were launched or exchanged outside the US.



In less than three years, Europe had more products than the US: 118 products and 192 cross-listings with assets of USD 10.7 billion. This growth has been impressive when compared to the US where it has taken nine years to see the launch of 113 products and over four years to accumulate USD 10.7 billion in assets under management. April 11, 2003 marked the third anniversary of the first ETF listing in Europe.

The most widely known and biggest ETFs in the world are SPDR (Spider), which tracks the S&P 500 Index and has a market capitalisation of USD 36 billion. The second biggest ETF is QQQ (Cubes), which tracks the Nasdaq-100 Trust with a market capitalisation value of USD 20 billion.

The company that developed the most ETFs is Barclays Global Investors. With 84 funds,⁸ they provide investor access to markets from Germany to Brazil. Barclays refer to their ETFs as iShares, and they have experienced a value increase of over 70 percent in 2003. Most of the big investment fund

⁸ De Lange (2004).

companies, for example Vanguard and Fidelity, have started creating their own ETFs. The cost of creating an ETF is very low compared to the creation of investment funds. This is a big problem for investment funds because the main reason for their underperformance, especially in Europe and the US, is their high cost.

Statistics provided by Morgan Stanley of the money flow on Wall Street show an unexpected trend. Some of the most rapid growth was in ETFs. This is similar to the South African Satrix family and NewRand from ABSA. On Wall Street, ETFs have a market capitalisation of USD 150 billion and in South Africa, where investors are slowly warming to the idea, we have a market capitalisation of nearly ZAR 6 billion.⁹

In South Africa, institutions are by far the largest investors in the still narrow range of JSE-listed ETFs. However, the three Satrix-listed funds and ABSA's NewRand managed to attract ZAR 6 billion by the end of January 2004; Satrix 40 was listed in 2000. These figures compared favourably with the combined ZAR 1.4 billion value of index unit trusts. Satrix 40 still has most of the market, with ZAR 3.2 billion and the remaining three have less than ZAR 1 billion invested each (Woods, 2004: 82). From these figures, we can see that ETFs are more favoured by investors than index unit trusts are.

Exchange-traded funds normally track an index; for example, Satrix 40 track the FTSE/JSE top 40 index. Because of the growth of this sector on Wall Street, there now is a wide range of ETFs that provide investors with highly specialised concepts. In South Africa, NewRand is an example of this. This fund is based on ten stocks on the JSE that are seen as the top rand hedges. The shares in NewRand are mostly commodity shares and show a strong correlation with the rand/dollar exchange rate (De Lange, 2004: 24).

ABSA's NewRand fund has about ZAR 1 billion invested in it, the bulk of which is institutional money. The fund is administered by ABSA Investment Management Services (AIMS). As with the Satrix family, investors here also have the option of investing through the stock market or through the investment plan. According to Hasam Shaik Ebrahim, product specialist from AIMS, there has been a steady inflow into the product, notwithstanding the rand's strength for the past few years. "It's a long term, not speculative investment," he says (De Lange, 2004:25).

⁹ At the end of January 2004.

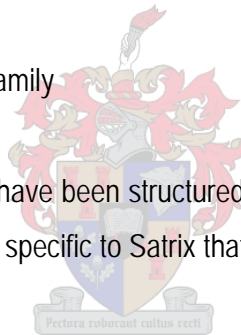
Investor interest in the two more specialised funds, Satrix FINDI and Satrix INDI, which were listed in February 2002, has been slower than in the Satrix 40 because these sectors have underperformed for the past few years. However, after beginning to rebound last year, they are expected to grow this year.

The partners that established the Satrix range of index funds – JSE, Corpcapital and Gensec Bank (Now Sanlam Securities) – recently announced plans to market the funds more actively and encourage more retail investors to invest in them by selling Satrix through Post Bank outlets in a joint venture with the SA Post Office.

In the current uncertain economic climate, we can expect continuing growth in the demand for ETFs worldwide, with products likely to exceed 350 over the next two years. This means that more managers will be launching ETFs, more exchanges will be listing them and total expense ratios will continue to fall. It is also likely to mean that we will see more ETFs on fixed income indices, with total ETF assets growing to well over USD 200 billion (Fuhr, 2003).

2.3.3 Satrix: The South African ETF family

Exchange-traded funds in South Africa have been structured in the same way as ETFs in the rest of the world, although there are some features specific to Satrix that will be emphasised.



Satrix securities are listed contracts that replicate the dividend and price performance of a particular index. They provide the same returns as would be received had the investor directly purchased shares in each company in the relevant JSE index.

Satrix securities are issued by a wholly owned subsidiary of the JSE (known as Index Co). These securities are listed on the JSE and are traded like any other JSE listed share. The underlying shares of the constituent companies in the relevant index are held by a trust under a contractual relationship with the issuing company. Holding the underlying basket of shares at all times enables the Satrix Trust to replicate the index performance (price and dividends).

2.3.3.1 Expenses

ETFs in the United States typically have a management expense ratio (MER) of 29 basis points. In the case of the South African Satrix products, the MER equals zero. Because the index-tracking portfolio in ETFs remains relatively stable, the managers are able to lend out much of the underlying index shares in the scrip lending market. This scrip lending income is sufficient to cover all the management costs of the product; thus owners of the Satrix securities will not encounter any mistracking of the index because of the costs of managing their products. Satrix, with its zero-costs ratio, appears to be the most cost effective ETF service provider in the world.

Index unit trusts will have to reduce their fee structures in line with that offered by Satrix. Satrix can be bought for no upfront fees apart from ordinary brokerage and marketable securities tax and less than 0.50 percent a year thereafter. This is likely to become the industry standard for all index unit trusts. At these low levels, some smaller funds will find it difficult to survive and may be forced to consolidate or merge.

2.3.3.2 Satrix investment plan

Satrix has set up a Satrix Investment Plan that enables retail investors to invest lump sums of ZAR 1000 or monthly investments of at least ZAR 300. Market participants say it is difficult to establish how much it costs to invest in Satrix because the partners are paid out of dividends and scrip lending fees, but they do acknowledge that it is as cheap as or cheaper than investing in an index unit trust. If the funds are bought directly at the stock exchange company, you will pay the lowest fee for equity related investments. On the long term, costs can make a big difference to return.

2.3.3.3 Conversion to a collective investment scheme (CIS)

The new CIS Control Act makes it possible to convert the Satrix structure to a collective investment scheme. When Satrix was originally developed for the local market, it was not possible to operate it as a unit trust structure because JSE regulations did not allow for the listing of unit trusts; unit trusts had to hold a five percent cash provision that lead to automatic mistracking of the index; and unit trusts could not indulge in scrip lending. In essence, the Unit Trusts Control Act, as it was previously applied in South Africa, did not sufficiently promote the low cost environment in which ETFs can be structured.

The new CIS Act has changed this because it allows funds to be invested fully and to lend out scrip. Additional benefits that would accrue to Satrix from being a CIS product are that the see-through principle applies in terms of prudential investment guidelines, and the capital gains tax treatment for an ETF is now equal to that for a unit trust.

A further benefit to investors is that Satrix will now fall under the regulation and jurisdiction of the Financial Services Board and the JSE Securities Exchange, which increases peace of mind for investors.

2.3.3.4 Satrix performance

In table 2.2, the performance of unit trusts that track the FTSE/JSE Top 40 Index is compared with the return on the Satrix 40 ETF. Here we can see that Satrix 40 has comfortably performed better than the Top 40 Index and the unit trusts that track this index. Not all of the unit trusts that are considered here are index funds.

Table 2.3

| SATRIX 40 VERSUS LARGE CAP UNIT TRUSTS PERFORMANCE FOR THE YEAR ENDED DECEMBER 2003 (Based on a lump sum investment) | | | |
|--|--------|---------|---------|
| | 1 Year | 2 Years | 3 Years |
| Number of Unit Trusts included in study | 6 | 6 | 5 |
| FTSE/JSE Top 40 Index returns over period | 13.30% | 6% | 9.60% |
| Arithmetic average return of all unit trusts in Survey over period | 8.20% | -0.85% | 8.50% |
| Satrix 40 Returns over period | 12.50% | 2.10% | 13.60% |
| Number of Unit Trusts outperforming Satrix 40 over period | 2 | 1 | 1 |
| Notes | | | |
| 1 Unit trusts and Satrix using FTSE/JSE Top 40 index as benchmark | | | |
| 2 Maximum costs are taken into account and dividends reinvested when received | | | |

Source: Brown, M. (2004). Unit Trust Survey, 61: 37.

2.3.4 How exchange-traded funds differ from unit trusts

2.3.4.1 Pricing

The market for ETF shares operates like the market for shares or common stock. Investors can buy or sell ETF shares at any point during the day. This allows for transparent and efficient price discovery and allows the investor to take advantage of price movements that occur during the day's trading. An index unit trust only prices once a day, usually at the end of the day. Unit trusts can thus only be bought or sold at the end of the day net asset value. In the case of ETFs, the price of units is available at all times on the market. If there is excess supply or demand for ETF units, the market makers will ensure that the units trade at the market price. Accordingly, ETF investors are able to take advantage of rapid price movements and intraday price changes.

According to Porteba and Shoven (2002: 3), these differences suggest that ETFs and mutual fund shares may be appropriate for different types of investors: ETFs for investors who demand short-term liquidity and who buy in large lots, and equity mutual funds for investors who make many small purchases or sales and who place less value on liquidity.

2.3.4.2 Convertibility

ETFs allow investors to exchange a basket of shares, weighted in correct constituents of the index being tracked for ETF units. Similarly, an investor can exchange a specified number of ETF units for a basket of the underlying basket of index constituent shares. In the case of Satrix 40, for instance, one million Satrix units can be exchanged for a properly weighted basket of stocks reflecting the FTSE/JSE Top 40 Index and visa versa. Investors in unit trusts are not permitted to exchange their units for the underlying basket of component shares, but can redeem units for cash on demand. The main advantage of this physical swap characteristic of ETFs is that such convertibility ensures that the exchange-traded fund trades at net asset value (NAV) at all times.

ETFs afford investors liquidity via this 'creation' process where an 'authorised participant' or 'market-maker' purchases the underlying basket of shares in the local market and deposits the basket 'in kind' with the ETF manager in exchange for more shares in that ETF. This unique creation/redemption process means that the liquidity in the ETF is driven by the liquidity in the underlying shares.

2.3.4.3 Full investment

Unit trust managers were often precluded from being fully (100 percent) invested in an index by regulated liquidity provisions. This was the result of a requirement that five percent or so should be held in cash. As only 95 percent can then be invested in the index being tracked, this leads to automatic mistracking. The Collective Investment Schemes Control Act recently introduced in South Africa now allows local index unit trusts to be fully invested, which brings them in line with ETFs.

2.3.4.4 Dividend distributions

Exchange-traded funds have structures that allow dividend and other income to be passed through to investors, without incurring taxation or other statutory costs. Accordingly, investors normally receive the full dividend yield of the index being tracked. This is also the case for Satrix products in South Africa. As a result, ETFs can claim to provide the full performance of the index – both capital returns as well as the full dividend yield.

Furthermore, it does not pay to 'trap' dividends in the ETF structure for too long as this dividend income is added to the NAV. This will lead to mistracking of the index. Dividends are paid out in cash on a regular basis to stakeholders, normally quarterly, but in the case of some ETFs on a monthly basis.

Quarterly distributions are made to holders of Satrix securities. The amount used for distribution will be all the dividends and interest which has accrued within the trust (which holds the underlying shares) less the costs incurred in managing the trust's assets.

2.3.4.5 Derivatives

Products such as options, warrants, single stock futures, etc. are normally made available on ETFs (they exist on Satrix, for instance), which facilitate liquidity and investment in such index tracking securities. Unit trust managers are not normally permitted to operate derivative products on their units, but may use derivatives in their investment mandate.

2.3.4.6 Short sales

Unit trust products cannot be sold short and therefore do not allow investors to take a negative view of the market. However, ETFs, which in essence are purely listed securities, do allow for short sales at any

time during stock exchange trading hours. This caters for investors who want to take a negative or a positive view of the market.

In addition, the ability to undertake bear trades in ETFs also facilitates derivative and arbitrage trades in the indices and this promotes liquidity in the market, subject to the relevant listing requirements. (Brown, 2004: 34-37).

2.3.4.7 Investors security

ETFs are settled just like any other shares on the stock exchange. They are transparent, as the fund manager discloses the underlying basket of shares to the market every day and, unlike traditional funds, are not subject to style drift. The JSE provides regulations, guarantees settlement of trade and transfer of securities and, through its member stockbroker network, provides for the servicing of clients.

According to De Lange (2004), the fraud cases in which many firms are currently involved may have attributed to the increased popularity of ETFs. With ETFs fraud is basically impossible due to the mechanical manner in which they are operated. Wood (2004) also adds that investment fund companies have been accused of disreputable behaviour, such as market timing and late trading.

2.3.5 The tracking error differences: Index unit trust vs. ETFs

The goal of index unit trusts and ETFs is essentially the same: to provide investors with a way to own a well-diversified indexed portfolio by using economies of scale to buy large quantities of stock at a low cost. However, they accomplish this goal in two very different ways.

If ETFs and index unit trusts are able to perfectly replicate the performance of the market, an investor would still have an important choice to make because of three non-tracking error differences between ETFs and index unit trusts, namely management fees, shareholder transaction costs and taxation costs.

Management fees are an inescapable cost of indirect investment in the stock market. The expense ratios for active funds are usually higher than index fund expenses. Exchange-traded funds have been able to offer even lower expense ratios than the cheapest of index unit trusts.

The main reason why ETFs are able to offer lower expense ratios is that they are not in charge of shareholder accounting. The task of keeping track of shareholder transactions and other such paperwork is a large percentage of the expense ratio, and for ETFs these tasks are performed by the brokerage house of the shareholder.

The constituent shares of the indices are reviewed on a quarterly basis. Any changes to the index will trigger a change to the underlying assets of the Satrix security in order to ensure continual alignment with the index composition. This ensures exact tracking of the relevant index for Satrix security holders.

The problems arising from ETF dividend policy are similar to those for index unit trusts. They face the same costs and timing mismatches as index unit trusts do when a constituent firm is replaced in an index or when corporate activity, such as a secondary public offering, changes the market cap of a stock and increases its weight in the index. These three sources of tracking error, although minor in comparison to market movements, are impossible to avoid whatever form of index tracking an investor chooses.

Shareholder transaction cost is another factor that is different for ETFs and index unit trusts. No-load index funds do not charge commissions on transactions, and since the vast majority of index unit trusts are no-load, an investor can easily find an index fund that does not charge a load. ETFs, on the other hand, have to be purchased on the secondary market (except for large investors who can perform creations/redemptions in-kind) where the investor has to pay a commission to the brokerage house and a fee to the market makers through the mechanism of the bid-ask spread (Kostovetsky, 2003: 84).

As Gastineau (2002) points out, ETFs are still evolving. In the near future, fixed-income ETFs and actively managed ETFs may once again change the world of finance as equity index ETFs have in the last decade.

CHAPTER 3

LITERATURE REVIEW

3.1 Introduction

The academic literature on the performance of mutual funds is a rich topic and spans several decades. Ever since mutual funds emerged in the early 1960s, the question of their performance and fund manager selection skills has interested economists. There has been a long-standing discussion over the relative benefits of active versus passive management in mutual fund literature. On the one hand, the very fact that we have thousands of investment professionals involved in active mutual fund management suggests that there must be benefits accruing to supposedly rational investors in these funds. Both the recent and long-term evidence point to the advantages of indexing over active management.

Most of the vast literature on mutual funds focuses on microeconomic issues, such as the investment performance of mutual funds and their ability to beat or equal the market, the level of expenses and fees and the role of distribution networks, the existence of economies of scale and their impact on competition and contestability.

As regards questions of microeconomic efficiency, the prevailing view is that in countries where security markets are well established, mutual funds underperform against the market, especially when fees are taken into account. No previous studies have compared the performance of active unit trusts in the South African market. Some studies analyse the tracking error of index funds and others question the persistence in the performance of active fund managers.

In this chapter, we will review literature that is relevant to this study. Regarding the South African literature, we will look at the tracking error in index funds and the factors that contribute to it. We will then cover the persistence in the performance of unit trusts. Unfortunately, no South African literature is available that compares the performance of index unit trusts to a benchmark. For this, we will turn to international literature that is mostly focused on the US market. We will also highlight the role that expenses have in the performance of these funds. This chapter also includes a short description of the development of index funds and exchange-traded funds.

3.1.1 Tracking error variance of index funds

According to Raubenheimer (2003), index or passive fund managers and investors analyse the interim volatility or the difference between their fund's return and the index's return¹⁰ in order to monitor the success with which the tracker funds mimic their benchmark. The objective of the index fund manager should be to keep the tracking-error-variance (TEV) as close to zero as possible. This article finds evidence of negative serial correlation in the tracking error of the domestic index funds, which shows that TEV will likely be overestimated.

There are two important implications of this upward bias. The funds may appear to be more risky than they are and thus damage their value-proposition to investors. Another implication is that managers may churn the fund's assets more than necessary to bring the fund into alignment and thus incur more transaction cost than necessary.

Chiang (1998) identifies the main factors driving index fund tracking error as transaction costs, fund cash flows, the treatment of dividends by the index, the volatility of the benchmark, corporate activity and index composition changes. The liquidity of the underlying index will also have implications for transaction costs and hence the tracking error incurred by index funds.

Consequently, tracking error in performance will be inherent in the management of index portfolios, leaving index managers with the dual objective of minimising tracking error in performance and minimising the costs incurred in tracking the index as closely as possible. Therefore, a trade-off exists between tracking error minimisation and transaction costs.

3.1.2 The persistence in the performance of unit trusts in South Africa

Over the years, different researchers have derived different conclusions about the persistence in the performance of unit trusts.

Gilbertson (1976) studied the performance of eleven unit trusts over the period 1970 to 1976 and showed that on average the unit trusts earned 1.10 percent less than the market on a risk-adjusted basis. Only

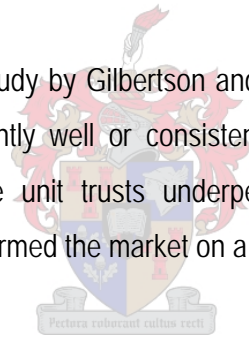
¹⁰ The fund's tracking error variance (TEV) represents the return of the fund in excess of the return of the index in the same period.

two unit trusts outperformed the market in this period, but the performance was not statistically significant.

Taylor (1977) studied the performance of ten unit trusts over the same period as Gilbertson, using the Sharpe, Treynor and Jensen measures. He found that on average the funds earned 2.40 percent less than the market on a risk-adjusted basis, but these results were not statistically significant at the five percent level. According to Knight and Firer (1979), the betas used by Taylor were not stable or stationary and for this reason studies using these tests should be treated with caution.

Gilbertson and Vermaak (1982) used all of the eleven funds that were in existence over the entire eight-year period. They thus ensured the presence of survivorship bias, but may have introduced another form of bias by the exclusion of funds that started in the period. Although they found that on average unit trusts underperformed against the All-Share Index by two percent, there was no statistically significant correlation at the five percent level and thus indicated no persistence in performance.

Knight and Firer (1989) updated the study by Gilbertson and Vermaak (1982) and found evidence that funds have performed either consistently well or consistently poorly over the period 1977 to 1986. According to this study, the average unit trusts underperformed by two percent, but five funds significantly (five percent level) outperformed the market on a risk-adjusted basis.



Garvin (1995) disagrees with the view that fund managers were not able to outperform the market consistently, or that any manager consistently performed worse than the market. According to him, there is little persistence in performance amongst fund managers.

On the other hand, Theron (1996) and De Lange (1996) argue that there is some evidence of persistence of performance of unit trusts in South Africa. They advise that it is important to invest in one of the better performers, which in the long run can make a significant difference in returns. If invested in the top quartile of best performers, one will consistently obtain positive returns.

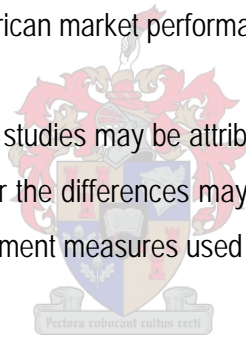
Meyer (1998) examines the persistence of South African unit trusts over a ten-year period from 1985 to 1995. She used the Jensen measure together with the security market line and the All Share Index over four-year, two-year and one-year intervals. Meyer found that the results are comparable to those obtained in much bigger markets and that some persistence in the performance of unit trusts in the South African environment does exist. Her results indicate that a repeat-loser phenomenon exists at a much

higher frequency than a repeat-winner phenomenon. This result is in line with US studies. Meyer concludes that persistence in performance seems to exist and it appears to be a guide to beat the pack in the long run.

The persistence of performance of the general equity unit trusts and all unit trusts that traded in South Africa during the periods January 1988 to December 1997 and January 1993 to December 1997 is analysed by Von Wielligh and Smit (2000) using three models of performance measurement. This study shows that there is evidence of both short-term and long-term persistence in performance of the poorer performing general equity funds. The portfolios with an average performance tend to become the top performers over time, while the top performer tends to become an average performer over time.

Beale et al. (2001) studied the persistence in general equity and fixed income performance over the period January 1989 to December 1999. Significant persistence was found for most combinations of formation and holding periods for risk-adjusted equity unit trusts. They suggest choosing the winners from the previous two years and holding them for the next two years as the best long-term strategy to adopt. Previous studies on the South African market performance are contradicted by these findings.

The difference in the results of all these studies may be attributed to the difference in the size and period of the data set used. Another reason for the differences may also be due to the different methodologies used in the testing and to the risk-adjustment measures used by the different researchers.



Most of the research done on the US mutual fund industry found that there is a positive persistence in performance. Von Wielligh and Smit (2000), Knight and Firer (1989), Meyer (1998), Grinblatt and Titman (1992), Hendricks, Patel and Zeckhauser (1993), Goetzman and Ibbotson (1994), Brown and Goetzman (1995), Elton, Gruber and Blake (1996), and Carhart (1997) all agree that there is some evidence of persistence in mutual fund performance. The overall conclusion that was reached in these studies was that the persistence in the performance in all funds arises from a persistence of inferior performance rather than from a persistence of superior performance. Another trend noticed in these studies is the constant underperformance of the unit trusts to the index on a risk-adjusted basis.

3.2 Index mutual funds versus active mutual funds

Elton, Gruber and Blake (1996:134) ask the following relevant question: "Given that there are sufficient index funds to span most investors' risk choices, that the index funds are available at a low cost and that

the low cost of index funds means that a combination of index funds is likely to outperform an active fund of similar risk, . . . why select an actively managed fund?"

3.2.1 Studies on the superior performance of index mutual funds

Most of the studies can be divided into two categories: studies that demonstrate a lack of superior performance by fund managers and studies that examine the market timing abilities of mutual fund managers.

Sharpe (1966), Treynor (1966) and Jensen (1968) state that mutual fund performance, net of expenses and after-risk adjustment, are poorer than what investors could achieve using a naive buy-and-hold strategy. While authors like Chen and Stockum (1986) and Lee and Rahman (1990) find that a limited number of fund managers have the selectivity and market-timing skills required to beat the market, analyses by Malkiel (1995) and Bogle (1998b) have shown that without prior knowledge of these few superior fund managers, investors would do best to stay in index funds.

Investor allocation of capital to active funds appears to make little economic sense, especially when one considers the definition of a benchmark index and the implications an index has for performance measurement. Sharpe (1991) asserts that on average active managers cannot better the returns derived from passive investment strategies. The reasoning is that the performance of the index equals the weighted-average return of both active and passive investors before investment expenses. Therefore, by definition active management is a zero-sum game.

Malkiel (1996) notes that over the past 25 years, about seventy percent of active equity managers have been outperformed by the S&P 500 Stock Index, with this figure growing to eighty percent in 1995. Gruber (1996) and Bogle (1995) also note similar results. They argue that index funds allow investors to buy securities of many different types with minimal expense and significant tax savings. According to Bogle (1996) states that the case for selecting an index fund is compelling due to indexing's inherent cost advantage.

Malkiel (1995:569) concludes by stating, "Most investors would be considerably better off by purchasing a low expense index fund than by trying to select an active fund manager who appears to possess a hot hand".

The most recent study by Frino and Gallagher (2001) reiterates that in the past five years S&P 500 Index mutual funds earned a better risk-adjusted, expense-adjusted return than actively managed funds.

It would clearly be wrong to say that views on index fund superiority are unanimous. Minor (2001) notes that, depending on the time horizon of data, it is possible to find periods when active funds outperformed their index fund cousins. Minor (2001) challenges Bogle's 1998 study by using the same sample and methodology but a different period. Minor's results contradict Bogle's findings and, in response to Bogle's (1998b) claim that investors buying high-cost actively managed funds must be fools, Minor concludes that the bigger fools are the investors who bought low-cost index funds.

Two research papers by Fortin and Mickelson (1999; 2002) contribute to the debate about active and passive fund management. Fortin and Michelson have conducted a comprehensive analysis with a large sample of mutual funds classified by investment objective over a long period.

Their results indicate that there are significant advantages to indexing. When examining a single index compared with each fund category, and setting aside the small company equity funds, they find the indices significantly outperform the mutual funds in 25 out of 30 possible cases. The primary contribution of this paper is to provide a more conclusive contribution to the debate about the benefits of mutual fund indexing and to show whether actively managed funds perform as well as index funds do.

An important feature of this research is that they analyse the results for both total return and after-tax total return. They find that on average index funds outperform actively managed funds for most equity, and all bond fund categories on both a before-tax and after-tax basis. However, actively managed small company equity (SCE) funds and international stock (IS) funds significantly outperform the index over most of the study period.

The overall results should be viewed with caution, however, as there is evidence that actively managed funds outperform the index funds during periods when the economy is either going into or out of a recession. It appears that active fund management is better than index funds at guiding portfolios through rough times. Both these studies by Fortin and Mickelson (1999; 2001) provide evidence that point to the potential viability of indexing as an attractive investment approach.

3.2.2 The expense ratio issue of active funds

The relationship between mutual fund expenses and performance is also reasonably well established. According to Carhart (1997), funds that heavily underperform have very high expense ratios, while funds that are successful do not increase revenues by raising their fees but benefit from the increased size of their funds.

Bogle (2000) shows that an index fund has a 350-basis-point advantage over the average equity mutual fund due to management expenses, brokerage costs, sales charges and tax advantages.

Actively managed equity funds charge higher fees than index tracking funds or bond and money market funds, reflecting the higher costs of employing investment management staff to achieve diversification and strategy (Estelle et. al., 1999).

Sharkansky (2002) shows that the higher cost paid for investing in a mutual fund does not purchase superior returns for the investors but only reduce the fund's expected returns. The higher a fund's costs, on average, the lower its returns. These costs add up over time and can consume an astonishing amount of the investor's potential wealth.

Low-cost funds are not guaranteed to perform well, and high-cost funds do not always perform poorly. Sharkansky (2002) studied the long-term performance of several types of mutual funds. Consistent with previous studies, the analysis shows that with higher fund costs come lower expected returns, lower chances for outperformance, and a greater risk of underperformance. Within every category of funds that was studied, funds with low expense-ratio (fees) and low turnover (low transaction costs) offered the most satisfactory results among their peers. This analysis confirms that one of the simplest and most reliable ways for an investor to improve his odds of investment success is to ensure that he is investing in reasonable-cost, low turnover and tax-efficient investment vehicles of the appropriate asset classes.

According to Sharkansky (2002), an investor would be about six times more likely to pick a losing fund than a winning fund, and about 12 times more likely to pick a big loser than a big winner. Investors think they have the ability to choose a big winner and thus invest in mutual funds and not low-cost index funds. They are willing to take the chance because they believe they know which investment to choose.

Fund fees are also related to asset allocation strategies. Aggressive growth funds tend to charge higher entry and exit fees to discourage redemptions because they hold more of the smaller, less liquid stocks (Chordia, 1996). Mutual funds and especially fund complexes benefit from scale and scope economies,

originating from activities that have large overheads, such as record keeping, communication and marketing, although adverse price impact and managerial diseconomies of scale place a limit on the efficient size of funds (Estelle et. al., 1999).

3.2.3 The development of index funds

Peter Bernstein's history of the development and application of the great ideas of finance, *Capital Ideas* (1992), makes it clear that index funds were part of a broader plan. The unifying objective seems to have been to replace the traditional trust department dog-walking and stock-picking process with portfolios that had more diversification and a more 'scientific' construction. Performance and diversification were as important as lower operating costs in the minds of many early practitioners of modern portfolio theory, but cost reduction preoccupied all the early indexing advocates.

The first indexed portfolio launched in 1971 by Wells Fargo was created for a single pension fund client. In 1973, Wells Fargo organised a commingled fund for trust accounts. In 1976, the funds were combined and the capitalisation-weighted S&P 500 Index was used as the template for the combined portfolios. By 1977, Wells Fargo had commissioned a study of the feasibility of moving beyond the S&P 500 to the Wilshire 5000.

It is one thing to persuade pension funds to adopt indexing; introducing the idea to individual investors was an even more daunting proposition. The idea caught on with investors thanks to some influential advocates.

In the first edition of his best seller, *A Random Walk down Wall Street* (1973), for example, Malkiel called for "a new investment instrument". He said:

What we need is a no-load, minimum-management-fee mutual fund that simply buys the hundreds of stocks making up the broad stock-market averages and does no trading from security to security in an attempt to catch the winners (1973: 226).

Samuelson (1974) questioned why no money management organisation offered an unmanaged diversified fund to the public. He believed that this could be done at relatively modest cost, and that the fund would probably be a better repository for savings than most actively managed funds.

Less than a year later, Charles Ellis (1975) marshalled some simple facts illustrating that the institutionalisation of the equity markets in the 1960s and early 1970s had made it probable that the average institutional investment manager would typically underperform against the market as measured by a representative index. The costs of trading actively managed institutional portfolios and paying administrative expenses and management fees, combined with the increased institutional share of the market, left too little stock in the hands of non-professional investors to let amateurs fill up the ranks of underperformers. Average active institutional investors were inevitably going to underperform against the unmanaged market indices over time.

With the implicit or explicit support of Malkiel, Samuelson, Ellis and others, John Bogle of Vanguard launched the first broad-market index fund for retail investors in 1975. Bogle was as motivated by the desire to reduce costs then as he is today. Neither Bogle nor his supporters could have anticipated the success of indexing, or the costs that the index management and publication process would impose on today's index fund investors. The thinking behind index funds has some academic substance to it. For years, many academics have been saying that it is impossible to consistently beat the market without raising your risk level, a theory known as Efficient Market Hypothesis (EMH). So in 1975, John Bogle took the stance that "if you can't beat 'em, join 'em" and created the first low-cost mutual fund that mirrored the S&P 500 index.¹¹



3.2.4 Exchange-traded funds

Exchange-traded funds have emerged as a viable alternative for investors seeking to tie their holdings to a major market index. The goal of index unit trusts and ETFs is essentially the same, which is to provide investors with a way to own a well-diversified indexed portfolio by using economies of scale to buy large quantities of stock at low cost, but they accomplish this goal in a totally different manner.

Since their appearance in early 1999, much has been written about them in the popular business journals, which all praised ETFs for their efficiency and versatility. Gastineau (2002), one of the developers of ETFs at the American Stock Exchange, outlined their history and mechanics.

Dellva (2001) was the only one who compared ETFs with index unit trusts and concluded that ETFs are not attractive for small investors because of brokerage commission costs. Because Dellva (2001) did not

¹¹ Bogle (2000). The development of index funds. The first index fund.

attempt to model the differences in costs quantitatively, Kostovetsky (2002) decided to focus his attention on that issue. He compared the explicit and implicit costs incurred by ETFs and looked at how these compare to the costs of index mutual funds. He also reviewed some qualitative differences between ETFs and index unit trusts. Kostovetsky (2002) pointed out that ETFs are still evolving, but found that the key areas of difference between these two instruments are management fees, shareholder transaction fees, taxation efficiency and other qualitative differences.

3.3 Summary

The preference in favour of active funds has continued despite considerable empirical evidence indicating that active funds do not earn significant returns in excess of the comparable indices. Despite the basic academic advice offered to investors to prefer low expense index funds, actively managed funds continue to be popular. In fact, index-tracking funds represent less than fifteen percent of total mutual fund assets. Gruber (1996) highlights the apparent puzzle surrounding the growth in actively managed mutual funds and the direction of significant mutual fund flows into the sector.

The Investment Company Institute reports significant growth in US stock mutual funds over the last calendar year. Net new cash flows increased to a record USD 309 billion as of December 2000, and the vast majority of net new money was allocated to active funds.

While most of the research done on mutual funds suggests that active fund managers generally do not have superior selectivity skills, but instead incur extra costs that penalise fund shareholders, analysts have not examined the problems inherent in indexed investments. As Frino and Gallagher point out, "Despite the significant attention to active funds in the performance evaluation literature, empirical research evaluating index funds is surprisingly scarce" (2001: 45).

Most academic researchers claim that the evidence goes against the money managers. The consensus academic opinion seems to be that money managers cannot beat the market on a risk-adjusted basis. Those managers who continue to try to beat the market, however, claim that academic studies do not accurately measure performance. Some academics typically compare performance with the S&P 500 Index, which may not be an appropriate benchmark since not all managers invest exclusively in S&P 500 stocks.

A major difference between the US mutual fund industry and the South African unit trust industry is the size of the industries as a whole and the number of funds available. This difference has made local research difficult, due to the small size of the market and the shorter period of performance history that is available.



CHAPTER 4

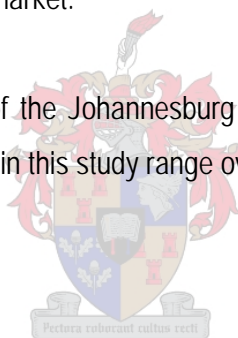
EMPIRICAL RESULTS

4.1 Introduction

According to research in the US, as discussed in the literature review, most active funds underperform against the index benchmark. Although most of these studies conclude that index funds are a better option, the majority of American investors still invest their money in active funds.

The main objective of this empirical study is to compare the performance of active general equity unit trusts with their index benchmark, the All-Share Index. Since index unit trusts are very underdeveloped in comparison to international markets, a further aim of this study is to provide reasons for the slow growth of index unit trusts in the South African market.

This study is performed on investors of the Johannesburg Stock Exchange (JSE) and the unit trusts traded on this exchange. The data used in this study range over the period 1984 to 2003.



4.2 Data and research methodology

4.2.1 Selection of the sample

The data used in this study is divided into seven samples. Together these samples cover a twenty-year period from 1 January 1984 to 31 December 2003.

For a unit trust to be included in these samples, it had to be a domestic general equity unit trust that traded on the Johannesburg stock exchange during this twenty-year period from 1984 to 2003. The sample was further reduced by including only the active funds that track the All-Share Index. Funds of funds are excluded from this data because including them would have led to double counting since they do not represent new investments.

It would have been ideal if the comparison between the performance of index unit trusts and the All-Share Index could have been included in this study. Unfortunately, this was not possible due to the limited size of the South African index unit trust market and the short period of data available for these funds. Inclusion would have reduced the study to a seven-year period, which is too small for a meaningful comparison and conclusion.

The data in the study covers the period from January 1, 1984 to December 31, 2003. This twenty-year period was then divided into and evaluated over the following seven performance periods:

- The four 5-year periods: 1984 to 1988; 1989 to 1993; 1994 to 1998; and 1999 to 2003.
- The two 10-year periods: 1984 to 1993 and 1994 to 2003.
- A 20-year period: 1984 to 2003.

It was difficult to decide whether funds that had not been in existence for the entire period should be included in the study, because this causes survivorship bias. Due to the limitation on the range of funds in the chosen categories, all the funds that existed in the different periods were used; no attention was given to the fact that all the funds were not in existence over the total twenty-year period.

The key to summarising the performance results of the actively managed funds is to compare them to a specific index. For the general equity unit trusts, I used the FTSE/JSE All-Share Index as a benchmark comparison. The returns of the index are based on the old JSE structure until May 2002 and the new FTSE/JSE Free Float Structure since June 2002.

4.2.2 Data

The performance data of the unit trusts was obtained from the Unit Trust Surveys that are published by the University of Pretoria.

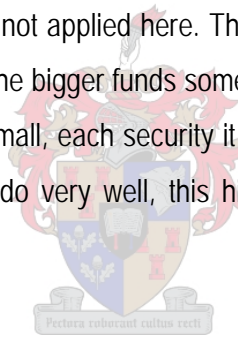
For the twenty yearly returns the calculation is based on a NAV to NAV¹² basis. This means that the initial charge and up-front compulsory charges are not included in the performance figures. Annual service charges are deducted in these calculations and dividends are reinvested on the payment date. These returns were used to calculate the standard deviation (risk) for both the ALSI and active funds.

¹² Net Asset Value (NAV)

For the five-, ten- and twenty-year periods, the returns are calculated on a Buyer to NAV basis. This means that initial charge and up-front compulsory charges are included and that maximum costs are taken into consideration. Annual service charges are also deducted in these calculations and dividends are reinvested on the payment date.

For all the periods, I have calculated an average, median rate of return, standard deviation (risk) and a Sharpe ratio. The median rate of return was used for comparative purposes. The reason for this is that in all of these data populations, the mean rate of return has the disadvantage since it is sensitive to extreme values. A large proportion of extremely large numbers, for example, would improperly influence the mean. In such cases, the median is considered a better measure of the average performance of the population.

It is important to note that the correct way for comparing these funds would be to adjust their returns to the size of the funds, although this has not applied here. The universe of funds that fund managers can invest in is limited in South Africa, and the bigger funds sometimes have trouble in allocating these funds as they would like to. When a fund is small, each security it holds represents a larger percentage of the whole. If some stocks in the portfolio do very well, this high representation increases the fund yield significantly.



4.2.3 Statistical procedures

Both parametric and non-parametric statistical tests will be used to test the statistical significance of the samples. A parametric test is a statistical test of significance primarily used for samples that are normally distributed. A non-parametric test is a statistical test of significance primarily used for smaller samples, without the restriction of the sample being normally distributed.

The statistical tests that were used to calculate the p-values were the parametric T-Test for a single sample and the sign-test as the non-parametric test. In all the groups, the T-Test was first used to calculate the p-values; all the groups were then tested to see if they were normally distributed. To confirm the p-values on the non-normal distributed populations the sign-test was used.

P-values are calculated to confirm whether there is any statistical significance over the different holding periods. A p-value of 0.05 or smaller means that there is a statistical significance in the difference between the returns at the five percent level.

4.2.4 Explanation of the tables

Table 4.1 provides a summary of all the statistical research results. These results include the return, standard deviation and Sharpe ratios for the All-Share Index, and the median rate of return, standard deviation and Sharpe ratio for the active unit trusts in the domestic general equity category over the seven performance periods.

The return for each of the seven performance periods was calculated as both arithmetic and geometric averages. The arithmetic average performances were used in the calculation of the Sharpe ratio for each of the periods and the geometric averages were used for comparative performances.

Tables 4.2, 4.3 and 4.4 provide the return performances of the individual funds over seven performance periods. Table 4.4 provides unit trust performance over the four five-year periods: 1984 to 1988, 1989 to 1993, 1994 to 1998 and 1999 to 2003. The return on the All-Share Index, the average, median rate of return and the standard deviation between the funds' return are provided for each period. Table 4.3 provides the same data for the ten-year period from 1984 to 1993 and 1994 to 2003, and Table 4.2 provides the same data for the twenty-year period from 1984 to 2003. In Appendix B (1) and B (2), the one-year performances of the unit trusts can be viewed.

Table 4.5 shows the number of funds in each of the performance periods and the percentage of these funds that underperformed against the index over that whole period.

Table 4.6 shows the p-values calculated by both the parametric and non-parametric statistical tests.

4.2.5 Calculation of the Sharpe ratio

To adjust the return for risk, the Sharpe ratio was calculated for all seven periods for both the unit trusts and the All-Share Index. The higher the Sharpe ratio, the higher the excess returns available per unit of risk. In order to avoid the beta stationary and stability problems, Sharpe's (1996) performance index was used to risk adjust the unit trust returns with the following formula:

$$S_p = (r_p - r_f) / \sigma_p$$

Where:

$(r_p - r_f)$ = the average fund excess return above the risk free rate, and

σ_p = the total volatility of the fund over time as measured by the standard deviation.

The three-month JIBAR rates that were used as the risk-free rate of return in this study were obtained from I-net Bridge. The three-month rates were first converted to a continuously compounded yearly rate. These yearly rates were then used to calculate the arithmetic averages for each of the seven performance periods. The three-month and yearly rates can be viewed in Appendix A.

Table 4.1

| SUMMARY FOR THE PERIOD ENDED 31 DECEMBER (based on a lump sum investment) | | | | | | | |
|--|----------------|------------------|---------------|-----------------|-------|----------------|-----------------|
| PERIOD | ALSI Return | Median Return | ALSI Risk* | Median Risk* | JIBAR | ALSI Sharpe | Funds Sharpe |
| 1984-2003 | 16.62 | 16.87 | 23.63 | 16.88 | 15.09 | 0.21 | 0.18 |
| 1984-1993 | 22.77 | 21.83 | 24.09 | 16.73 | 16.30 | 0.48 | 0.47 |
| 1994-2003 | 10.77 | 11.71 | 20.46 | 14.76 | 13.89 | -0.07 | -0.12 |
| 1984-1988 | 21.57 | 19.52 | 21.45 | 17.44 | 15.44 | 0.62 | 0.45 |
| 1989-1993 | 23.99 | 22.22 | 26.44 | 15.93 | 17.16 | 0.37 | 0.50 |
| 1994-1998 | 4.62 | 8.19 | 11.50 | 10.29 | 16.15 | -0.95 | -0.69 |
| 1999-2003 | 17.30 | 16.53 | 24.51 | 17.64 | 11.63 | 0.33 | 0.20 |

*Risk = Standard deviation
 ALSI = All-Share Index
 Median = Median rate of return
 JIBAR = Risk-free rate of return
 Sharpe = Sharpe ratio
 Funds = Actively managed general equity unit trusts

4.3 Results

4.3.1 Return

For all seven performance-periods, the difference between the return on the All-Share Index and the return on the general equity unit trusts was very small. In three of the seven periods, the general equity funds outperformed the index and in the remaining four periods, the funds were outperformed by the index. The periods that the index was beaten by the unit trusts were 1984 to 2003, 1994 to 2003 and 1994 to 1998.

If an investor invested for the total twenty-year period from 1984 to 2003, he would have gained a return of 16.87 percent, which is only 0.25 percent more than what the return on the index was over the same period.

Only three of the seven periods show a considerable difference in return. In two of these periods, 1984 to 1988 and 1989 to 1993, the funds underperformed against the index, and in the period 1994 to 1998, the active funds performed better than the index.

Table 4.2

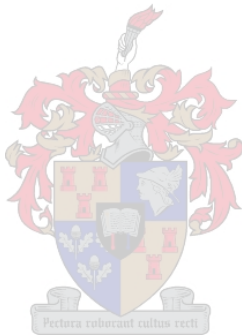
| UNIT TRUST PERFORMANCES FOR THE 20- YEAR PERIOD ENDED 31 DECEMBER (based on a lump sum investment) | |
|---|-------|
| 1984- 2003 | |
| *FTSE/JSE All Share Index | 16.62 |
| <i>Arithmetic Average</i> | 16.09 |
| <i>Median Rate of Return</i> | 16.87 |
| <i>Standard deviation (funds)</i> | 1.44 |
| Liberty Wealthbuilder-R | 16.87 |
| Old Mutual Investors' | 17.70 |
| Sage Fund | 17.07 |
| Sanlam General | 13.86 |
| Standard Bank Mutual-R | 14.96 |

Table 4.3

| UNIT TRUST PERFORMANCES FOR THE 10- YEAR PERIOD ENDED 31 DECEMBER (based on a lump sum investment) | | | |
|---|-------|-----------------------------------|-------|
| 1984 - 1993 | | 1994 - 2003 | |
| *FTSE/JSE All Share Index | 22.77 | *FTSE/JSE All Share Index | 10.77 |
| <i>Arithmetic Average</i> | 21.58 | <i>Arithmetic Average</i> | 11.38 |
| <i>Median Rate of Return</i> | 21.83 | <i>Median Rate of Return</i> | 11.71 |
| <i>Standard deviation (funds)</i> | 1.96 | <i>Standard deviation (funds)</i> | 2.92 |
| Guardbank Investors' Fund | 23.99 | ABSA General-R | 6.63 |
| Old Mutual Investors' | 23.61 | Community Growth | 12.52 |
| Sage Fund | 21.83 | Futuregrowth Albaraka Equity | 15.99 |
| Sanlam Prime Growth Trust | 18.53 | Investec Equity-R | 16.03 |
| Sanlam Trust | 18.97 | Liberty Wealthbuilder-R | 9.41 |
| Standard Bank Mutual | 22.40 | Metropolitan General Equity | 12.08 |
| UAL Unit Trust | 21.73 | Old Mutual Investors' | 11.03 |
| | | Old Mutual Top Companies | 11.38 |
| | | RMB Equity | 13.66 |
| | | Sage Fund | 12.03 |

Over the 1984 to 1988 period, the return on the index was 21.57 percent in comparison to the 19.52 percent return on the active funds. The unit trusts underperformed

Table 4.4



UNIT TRUST PERFORMANCES FOR THE 5- YEAR PERIOD ENDED 31 DECEMBER
(based on a lump sum investment)

| 1984 - 1988 | | 1989 - 1993 | |
|------------------------------------|-------|-----------------------------------|-------|
| *FTSE/JSE All Share Index | 21.57 | *FTSE/JSE All Share Index | 23.99 |
| <i>Arithmetic Average</i> | 19.69 | <i>Arithmetic Average</i> | 22.87 |
| <i>Median Rate of Return</i> | 19.52 | <i>Median Rate of Return</i> | 22.22 |
| <i>Standard deviation (funds)</i> | 2.78 | <i>Standard deviation (funds)</i> | 1.86 |
| Guardbank Growth | 21.87 | Guardbank Growth | 23.29 |
| Old Mutual Investors' | 24.15 | Metfund | 22.27 |
| Sage Fund | 19.04 | Momentum | 24.24 |
| Sanlam General | 15.72 | NBS Hallmark | 21.58 |
| Standard Bank Mutual-R | 19.99 | Norwich | 22.22 |
| UAL Unit Trust | 17.35 | Old Mutual Investor's Fund | 21.72 |
| | | Sage Fund | 21.34 |
| | | Sanlam Prime Growth Trust | 21.61 |
| | | Sanlam Trust | 21.68 |
| | | Southern Equity | 22.21 |
| | | Standard Bank Mutual | 22.53 |
| | | Syfrtes Growth Fund | 28.51 |
| | | UAL Unit Trust | 24.14 |
| 1994- 1998 | | 1999-2003 | |
| *FTSE/JSE All Share Index | 4.62 | *FTSE/JSE All Share Index | 17.30 |
| <i>Arithmetic Average</i> | 8.67 | <i>Arithmetic Average</i> | 17.04 |
| <i>Median Rate of Return</i> | 8.19 | <i>Median Rate of Return</i> | 16.53 |
| <i>Standard deviation (funds)</i> | 3.90 | <i>Standard deviation (funds)</i> | 8.03 |
| ABSA General-R | 7.10 | ABSA General-R | 6.15 |
| BOE Growth | 12.36 | Allan Gray Equity | 37.55 |
| Community Growth | 11.50 | Community Growth | 13.55 |
| CU Growth | 3.52 | Coronation High Growth | 14.51 |
| Fedsure Growth | 12.80 | FNB Growth | 20.47 |
| Futuregrowth Albaraka Equity | 16.76 | Futuregrowth Albaraka Equity | 26.84 |
| Guardbank Growth | 2.50 | Futuregrowth Core Equity | 13.33 |
| Investec Equity-R | 12.55 | Gryphon Imperial SA Tracker | 12.33 |
| Liberty Wealthbuilder-R | 10.14 | Investec Equity-R | 19.63 |
| Marriott Equity | 6.18 | Liberty MM RSA Equity-A | 16.91 |
| Metropolitan General Equity | 14.06 | Liberty Prosperity-R | 19.19 |
| NIB Syfrtes Growth | 3.37 | Liberty Wealthbuilder-R | 16.80 |
| NIB Syfrtes Selected Opportunities | 9.99 | Metropolitan General Equity | 10.14 |
| Norwich Unit Trust | 14.50 | Nedbank Equity-R | 5.51 |
| Old Mutual Growth | 11.80 | Oasis Crescent Equity Fund | 35.77 |
| Old Mutual Investors' | 5.78 | Old Mutual Investors' | 16.53 |
| Old Mutual Top Companies | 8.85 | Old Mutual Top Companies | 13.98 |
| RMB Equity | 8.14 | RMB Equity | 19.46 |
| Sage Fund | 6.05 | Sage Fund | 18.34 |
| Sanlam General | 4.92 | Sanlam General | 12.08 |
| Sanlam Prime Growth | 8.23 | Standard Bank Mutual-R | 8.82 |
| Southern General | 3.28 | | |
| Standard Bank MM Equity-A | 5.82 | | |
| Standard Bank Mutual-R | 7.98 | | |

against the index by 2.05 percent. During this period, 66.67 percent of the actively managed unit trusts underperformed against the index. Over the 1989 to 1993 period, the index produced a 23.99 percent return that was 1.77 percent higher than the median rate of return on the active funds. During this period, 76.92 percent of the funds underperformed. The average investor would thus have been better off if he invested in a fund that tracked the return of an index than he would have been had he invested in a unit trust that were actively managed.

During the 1994 to 1998 period, the unit trusts delivered a median rate of return of 8.19 percent, which was 3.57 percent higher than the return on the index. Of the 24 actively managed unit trusts in this category, only 16.62 percent underperformed against the index.

Table 4.5

| FUNDS THAT UNDERPERFORMED AGAINST THE INDEX PERIOD ENDED 31 DECEMBER | | |
|---|-------|------------------|
| | FUNDS | UNDERPERFORMANCE |
| 1984-2003 | 5 | 40.00% |
| 1984-1993 | 7 | 71.43% |
| 1994-2003 | 12 | 33.33% |
| 1984-1988 | 6 | 66.67% |
| 1989-1993 | 13 | 76.92% |
| 1994-1998 | 24 | 16.62% |
| 1999-2003 | 21 | 61.90% |



Over the other five periods, the difference in return between the index and the unit trusts ranged from a negative 0.94 percent to a positive 0.94 percent.

A general conclusion from these results is that the average investor would have, in the long run, obtained the same return had he invested in a fund that tracked the index closely or an active unit trust. In four of the seven periods, the investor would have been better off investing in an index fund. It is also important to remember that we have already considered maximum costs in the performance percentages of the active funds, and that the return on an index fund would be less than the performance of the index due to costs that still have to be taken into consideration.

4.3.2 Standard deviation

The standard deviation over these performance periods provides us with a portrayal of the risk associated with these returns.

In table 4.1, we can see that the standard deviation of the return on the ALSI is much higher than the standard deviation of the median rate of return of the unit trusts.

The standard deviations of the return on the All-Share Index range from 20.46 percent to 26.44 percent, with an extreme value of 11.50 percent in the period 1994 to 1998. For the active funds, the standard deviation of the median rate of return ranges from 10.29 to 17.64 percent.

The reason for this occurrence is that the All-Share Index is more heavily invested in high market capitalisation shares than unit trusts are. Most of these shares are rand hedges and have historically been more volatile, hence the high standard deviation.

It is important to note that I am using the median rate of return for comparative purposes, as explained in 4.2.1. The standard deviation for the funds was calculated by using the median rate of return.

4.3.3 Sharpe ratio

The Sharpe ratio gives risk adjusted return for all the performance periods. It is not sufficient to look at the return only; the risk that you accept for investing in these funds should also be considered. The higher the risk-adjusted return (the Sharpe ratio), the higher the excess return available per unit of risk.

In table 4.1, we see that the Sharpe ratio was higher for the All-Share Index in all periods, except for the periods 1989 to 1993 and 1994 to 1998.

According to these results, the All-Share Index has been a better risk-adjusted investment over most of these periods than unit trusts.

4.3.4 P-Values

For all seven periods, I calculated the p-values by using the T-Test for a single sample. All of these data samples were then tested for normality in their distribution. All of the samples were normally distributed, except for the periods 1989 to 1993 and 1999 to 2003. Due to the non-normality that was witnessed in these samples, we calculated the sign-test to confirm the p-values from the T-Test.

When a p-value has a value of smaller than 0.05, it indicates that the difference is significant. As can be seen in table 4.6, there was only one period that indicated a significant difference in the return between the unit trusts and the index. The period 1994 to 1998 has a p-value of 0.000048 as calculated by the T-Test and a p-value of 0.001091 as calculated by the sign-test. This indicates that the unit trusts produced a return that does not overlap with the return of the index. If we look at the performance figures, we can see that the average unit trusts had a return of 8.19 percent during this period in comparison with the 4.62 percent produced by the All-Share Index.

Table 4.6

| P- VALUES FOR PARAMETRIC AND NON-PARAMETRIC TESTS PERIOD ENDED 31 DECEMBER | | |
|---|----------|-----------|
| | T-TEST | SIGN-TEST |
| 1984-2003 | 0.504841 | 0.654721 |
| 1984-1993 | 0.186887 | 0.256839 |
| 1994-2003 | 0.505102 | 0.248213 |
| 1984-1988 | 0.190331 | 0.414216 |
| 1989-1993 | 0.059857 | 0.052203 |
| 1994-1998 | 0.000048 | 0.001091 |
| 1999-2003 | 0.887334 | 0.275234 |

For all the other periods, the p-values did not indicate a significant difference between the return on the unit trusts and the return on the index.

4.4 Conclusion

Investors should view unit trusts as a long-term investment and therefore performance must be evaluated over an extended period. I evaluated unit trusts over a twenty-year performance period, which was split into seven different evaluation periods.

From the evaluations made in this chapter, it was observed that, although the South African market is still very young, the average investor would have earned almost the same return had he invested in an active general equity unit trust or the All-Share Index over the total twenty-year period.

There are a few periods where the index was beaten by the average unit trust and vice versa, but the overall picture does not indicate a significant difference between the performance of active unit trusts and their benchmark, the All-Share Index. The overall results indicate that there is no significant advantage to investing in index tracking funds, but neither is the case for actively managed funds that powerful.

If we assume that an index unit trust would have delivered the same return as the All-Share Index over these twenty years, then we first have to take into consideration the expense that would have been deducted from these performance figures. If we now compare these performance figures with the return on active unit trusts, the argument for indexing does not look so compelling. Although the US has an undeniable case for index investing due to the inherent cost advantage, this is not applicable to our South African market. In South Africa, the average index unit trust charges the same expenses as active unit trusts do in the general equity category.



CHAPTER 5

REASONS FOR THE SLOW GROWTH OF INDEX UNIT TRUSTS IN SOUTH AFRICA

5.1 Introduction

The aim of this study is twofold: It firstly investigates the South African unit trust industry and compares the performance of the general equity unit trusts with their benchmark, the All-Share Index. Its second aim is to provide explanations for the limited range of index unit trusts and their small net asset value in comparison with active funds. This trend is examined from the perspective of the investor and investment companies.

Index unit trusts are still a fairly new concept in the South African market because the first index funds were launched only seven years ago. Investors still have to get used to this concept, since active funds are clearly still the preferred choice for unit trust investors.

After studying several articles on this subject, several reasons emerged why index funds are not the preferred investment choice in South Africa, as academics believe they should be. These reasons will be discussed throughout this chapter.



5.2 Reasons

5.2.1 Investor sentiment

The question why more people do not invest in index unit trusts must still be answered. Many investors may see it as an unexciting investment vehicle and not as glamorous as active unit trusts.

One of the major arguments of active managers is that by investing in an index fund the investors are giving up before they have even started. These managers believe that the market has already defeated investors who are buying into these types of funds. As index funds will always earn a return identical to that of the market they are tracking index investors will not be able to participate if any anomalies occur.

It is in our human nature to believe that we have the ability to be better than the average or that we are one of the best. This also applies to investors who believe that they have the ability to choose the unit trust that will outperform the index. Unfortunately, most do not have this gift and yet they are unable to accept average return when there is a chance that they could earn above average returns on their investments.

The South African market is still small and underdeveloped in comparison with giants like the US and Europe. It is for this reason that South African investors have not yet turned to index funds because they still have a substantial chance of investing in a winning active fund that will provide them with an above average return in comparison with an index fund.

5.2.2 The costs of index funds

If most active managers typically do not add value, why should we pay their fees when we can match the index for a couple of basis points? This is the argument of American index fund supporter John Bogle. Index fund supporters argue that index funds perform better because they do not require the costly research and analysis that apply to active funds. All these costs are eventually paid for by the investors in the form of commission and other fees. Even if money managers outperform the index on a risk-adjusted basis and after transaction costs, it has been shown that the management fee is in most cases still larger than the amount by which the index was outperformed.

In the US, index funds have regularly produced rates of return exceeding those of active manager by 100 to 200 basis points. There are two fundamental reasons for this excess performance: management fees and trading costs. In the US, efficient public index mutual funds are typically run at a fee no higher than 20 basis points. Active mutual funds charge annual management and market expenses that generally exceed 140 basis points per year. Index funds trade only when necessary, while active funds have a turnover rate of at least 50 percent. Using very modest estimates of trading costs, such turnover probably costs the active manager at least another 50 basis point of performance a year. Even if stock markets were less than perfectly efficient, active management as a whole cannot achieve gross returns exceeding the market as a whole. Active mutual funds therefore on average underperform against the indices by the amount of their expenses and transaction cost disadvantage (Malkiel, 2001: 2).

Although this is one of the major arguments used in support of index funds, I feel that it is not entirely relevant to the South African index unit trust market. The fees charged for South Africa's two largest

index unit trust, Sanlam Index Trust (ZAR 681 million at the end of December 2003) and RMB Top 40 Index Fund (ZAR 173.3 million), are higher than you would expect from an index fund, charging upfront and annual management fees of 5.70 percent and 1.14 percent, and 3.71 percent and 1.14 percent respectively. This is more than you would pay if you invested in the Investec Index Fund or the Kagiso Top 40 Tracker Fund, which both do not charge an upfront fee and charge investment management fees of 35 basis points and 50 basis points respectively.

5.2.3 Commissions

Many investors consult their investment brokers because they believe they will give them the best possible advice. The problem is that for an asset consultant to recommend that his client must invest in an index unit trust will mean a lower commission for him. As noted by Tony Bell, the MD for Peregrine Quants, the appetite for passive management has been sluggish because it is not in the interest of asset consultants to promote index unit trusts (Wood, 2004b: 64).

Some funds have established selling agreements with stockbrokers, financial planners and other insurance agents. These selling agents receive a commission for selling the funds. In the US, such funds are termed load funds because of the commission associated with their purchase.

This can be seen as an important reason for why index unit trusts have not yet gained a bigger share in the South African unit trust industry. The asset consultants gain a bigger commission from active unit trusts. They consequently do not advise clients to invest in index unit trusts.

5.2.4 Enhanced strategies

Another reason for the slower than expected take-up of straightforward index unit trusts is that quantitative fund managers have focused more on building investment funds that offer 'enhanced' index returns. These funds aim to achieve a slight premium on top of the index's return by taking active positions in certain stocks and thus tilting their portfolios away from the benchmark index.

These enhanced funds are cheaper than active unit trusts, and investment decisions are based on quantitative processes rather than on a manager's gut feelings or other qualitative factors. Enhanced index managers say the selling point for their product is the rigorous, repeatable and transparent investment process. These funds place emphasis on risk-adjusted returns, rather than on the returns

alone. Most enhanced index managers set strict parameters within which they can deviate from the benchmark index.

5.2.5 Marketing

Personal financial management can be seen as a key aspect in our modern lives. There are only a few individuals who have the skill and knowledge to make intelligent investment decisions for themselves, thus resulting in the need for investment companies. The investment fund industry recognised this as a profitable business opportunity and use advertising campaigns to persuade investors to buy their funds.

Investment funds, like all other products, have to make a profit for their creators and because of the low expense ratio of index funds they are not advertised to the same degree as other funds. The consequence is that investors are more aware of active funds simply because index unit trusts are not as profitable for investment companies as active funds are. What investors in active funds do not realise is that they eventually pay for these persuasive and costly advertising campaigns through a reduction in their earnings.



5.2.6 Exchange-traded funds

Exchange-traded index funds may be regarded as another reason for the slow take-off of index unit trusts in our market. Since the launch of the first South African ETF in 2001, these funds have shown an astonishing growth in comparison with index unit trusts.

In South Africa, our nine index unit trusts have a total net asset value of ZAR 1.4 billion in comparison with the ZAR 6 billion net asset value of the four exchange-traded funds listed on the JSE. In the US, the situation is different with 150 index mutual funds with a net asset value of USD 1.5 trillion in comparison with the USD 150 billion net asset value of the 120 exchange-traded funds.

The difference in these two markets may be due to the relatively short presence of index unit trusts in South Africa in comparison with index mutual funds in the US. In the US, exchange-traded funds still have to bring index mutual fund investors round, whereas in South African, the index investors were never inclined to index unit trusts.

Exchange-traded funds have the lowest expense ratio among all South African registered investment products. There is no upfront cost associated with these funds and only a once-off brokerage fee and marketable securities tax have to be paid in addition to the low yearly fee of 0.50 percent.

Another advantage is that these funds are more liquid than unit trusts are. They can be traded throughout the day in contrast to unit trust that can only be bought or sold at the end-of-the-day's net asset value. With ETF, fraud is basically impossible due to the mechanical way in which transactions are processed. For an investor looking for a low risk investment, these funds definitely provide the lowest risk compared with funds aiming at the same return.

5.2.7 The market conditions and the performance of active funds

During the past twenty years, the market has had its problems and managers have found it difficult to predict which way the market will go. The disadvantage of index funds is that when the market is in a downward trend, you will also experience the market return in this period. Nevertheless, during these unpredictable periods in the market, active funds had the opportunity to take advantage of any anomalies, something index funds could not do.

The empirical results in chapter four showed that, over a period of twenty years, no significant difference in the return produced by the average active unit trust and the All-Share Index emerged. Although in four of the seven performance periods the active unit trusts underperformed against the index, unit trusts were a better risk-adjusted investment than an index-tracking fund would have been. Although there were periods where the index outperformed the average unit trust, there was only one period, 1994 to 1999, that showed a significant difference.

If we assume that index unit trusts produced the same results over this twenty-year period as the index did, then the expenses experienced with index unit trusts must still be taken into consideration. This would have reduced the results to such a point that the case for indexing would not have been so compelling. Although the argument in favour of active unit trusts is not that powerful, it is strengthened by this assumption.

5.2.8 Article by Gruber on solving the active vs. passive puzzle

Gruber (2001) states that he has solved the puzzle why investors prefer and continue to invest in active funds. He states that future performance is in part predictable from past performance. In addition, this can occur because the price at which funds are bought and sold is equal to net asset value and does not change to reflect superior management. He says that a group of sophisticated investors seems to recognise this, as evidenced by the flow of new money into and out of mutual funds. Investors who supplied new cash flow benefited from this. For this, risk adjusted returns earned on the new cash flows over the ten years of his study are positive and above the return earned by both the average active and the average passive fund.

He explains why money remains in funds that perform poorly by dividing investors into two categories: sophisticated and disadvantaged clientele. The sophisticated clientele direct money to funds based on performance. The disadvantaged clientele consist of three groups. The first group is unsophisticated and directs money to funds based on influences such as advertising and advice from brokers. The second group is institutionally disadvantaged and is primarily represented by pension funds that are restricted by the plan they are part of. The last group is tax-disadvantaged investors who have held a fund for enough time so that capital gains taxes make it inefficient to remove money from these funds.

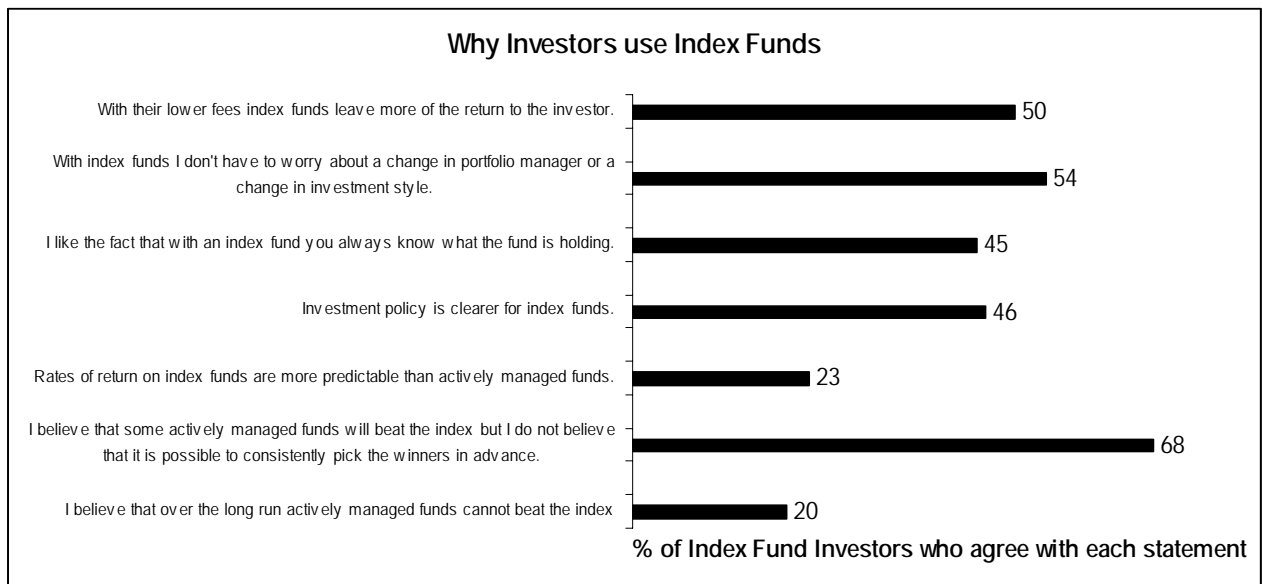
Gruber's study is based on the assumption of persistence in performance. As discussed in chapter two, much research has been done on the persistence in performance on the JSE, and although there were contradictions in this research, most researchers did not find any persistence. Based on this, Gruber's theory is not applicable to our market. However, his theory about why people invest in poorly performing funds should be kept in mind because aspects of it may be relevant to our market.

5.3 Conclusion

There is no clear-cut reason for the slower than expected take-up of index unit trusts in the South African investment industry. The size of our local market and the short period that index unit trusts have been available are limited in comparison with global markets. Due to this, international reasons for the feasibility of index funds are not always relevant.

Although investors dream of choosing the fund that will realise superior performance, it is not often that they succeed in actualising these dreams. So what, if anything, can an investor do to improve his odds of selecting a winning fund and reduce the risk of being stuck with a losing fund?

In a study by Barclays Global, investors were asked the reasons why they prefer to invest in index funds. The following figure gives the response of these investors.



Source: iUnits™ Barclays Global Investors

Most (68 percent) of these investors believe that although some active funds will beat the index they are not always able to choose one of the winning funds. Therefore, even though investors dream of superior performance, they realise that the odds are against them.

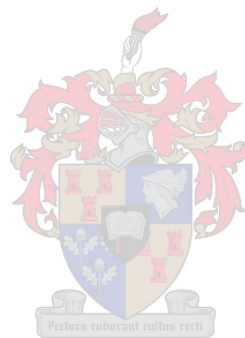
This brings us back to the role that cost plays in the preference for index funds. In this survey, fifty percent of the investors chose index funds due to their lower expense ratios. If in the long run the average active fund does not beat the index, then investors will be better off investing in a low cost index fund where the performance is predictable.

Investors rely on their asset consultants to provide the best advice for their savings, but asset consultants are not that eager to promote these funds due to the smaller commissions associated with index unit trusts. Investment companies also do not spend the same amount of money or time on advertising index unit trusts as they spend on active unit trusts. This is due to the smaller expense ratio of index unit trusts. The result is that investors are not exposed to the benefits of index funds because it is not as profitable for asset consultants and investment companies.

Although all the above-mentioned reasons may contribute to the slower than expected take-up of index unit trusts, I feel that the following two reasons play a more significant role because they are direct substitutes for index unit trusts, with a few added benefits.

Quantitative fund managers have focused more on building investment funds that offer enhanced index returns and thus aim at a slight premium on the index's return. Enhanced index funds have not only been more attractive to investors due to their enhanced return, but also for their lower cost and risk in comparison to active funds.

The second reason is the astonishing growth of exchange-traded funds. The net asset value of ETFs has already reached ZAR 6 billion since their launch in 2001, compared to a net asset value of ZAR 1.4 billion of index funds. ETFs also offer a lower expense ratio and higher liquidity than index unit trusts.



CHAPTER 6

SUMMARY, CONCLUDING REMARKS AND RECOMMENDATIONS

6.1 Introduction

This chapter concludes my research on investment funds in the global and South African market. I will provide a short summary of each chapter, followed by my concluding remarks with reference to the empirical study and the results achieved. Here I will also provide a conclusion on the possible reasons for the slower than expected growth of index funds, specifically index unit trusts, in South Africa. A few recommendations are also made with respect to future research in this field.

6.2 Summary

Chapter 1 provides the background and states the research question of the study. The primary objective of the study is identified as the comparison of the performance of active unit trusts against their benchmark, the All-Share Index. The secondary aim is to examine South African investors' preference for active unit trusts above index unit trusts. An overview of the global investment fund industry and its growth to a world- wide asset value of USD 12.8 trillion and 54 000 investment funds is provided. The European and American investment fund industries are compared and the conclusion reached that the European industry is lagging behind the US with regard to total assets, average fund size and capital market importance. The factors that influence the demand and supply of investment funds are stated. I furthermore provide insight into the growth of index funds in Europe, South Africa and the United States, and point out how underdeveloped the South African index fund market is.

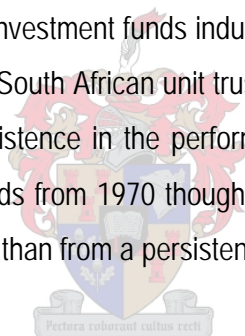
Chapter 2 defines an index as "the statistical measure of the changes in a portfolio of stocks representing a portion of the overall market" and explains the basic weighting schemes used to calculate an index, as well as the methods used to create an index fund. An index fund is defined as an investment fund that is established to replicate and match the performance of a major market index such as the All-Share Index. Active and passive (index) unit trusts are compared in terms of their aims and strategies. Here I found that the expenses experienced by active unit trusts are very high and reduce the return that investors

receive. The reasons why index funds are a better option are discussed as are the tracking error experienced by passive fund managers; transaction costs, fund cash flows, dividends, benchmark volatility and index composition changes.

An enhanced strategy tracks the performance of an index closely, but provides incremental returns with risk-adjusted strategies. These strategies are slowly gaining ground in the South African market and are a threat to pure index unit trusts.

In the third section of chapter 2, exchange-traded funds in the global and South African markets are scrutinised and a tremendous growth in this industry is noted. Since the launch of the first exchange-traded fund in 1993, the world-wide asset value has grown to USD 102.3 billion and the South African value to ZAR 6 billion. The Satrix family is discussed, as well as the difference between exchange-traded funds and index unit trust.

In Chapter 3, the vast literature on the investment funds industry is reviewed to gain a better perspective on the subject. Literature regarding the South African unit trust industry is limited and only cover tracking error variance of index funds and persistence in the performance of unit trusts. Studies regarding the persistence in performance cover periods from 1970 though to 1999 and all agree that the persistence arises from inferior performances rather than from a persistence of superior performances.



The international literature mostly focuses on the debate about active versus passive funds. Unfortunately, few studies compare the performance of index funds to an index. Studies analysing active fund performance find that on average active mutual funds do not succeed in performing better than the indices. The general conclusion is that active funds underperform due to their high expense ratios.

The rest of the chapter discusses the literature on the development of index funds and exchange-traded funds.

Chapter 4 outlines the methodology of the study, defines the selection of the sample and the analysis of the data. The statistical procedures are explained as well as the Sharpe ratio. From the results, it is concluded that an investor would have earned roughly the same return had he invested in an index fund or an active unit trust over the twenty-year period. Although unit trusts underperformed in four of the seven holding periods and the Sharpe ratios indicate that the All-Share Index is a better risk-adjusted investment, it is still difficult to say if an index or active fund will deliver the best return.

Chapter 5 aims to provide reasons for the slower than expected growth of index unit trusts in the South African market. It is argued that investors invest in active unit trusts because they feel they have the knowledge to choose the winning fund and do not want to settle for an average return. Investors are also not informed about the benefits of index investing due to a lack of marketing and asset consultants do not promote these products. Although there is no clear-cut reason for the slow growth, I feel that exchange-traded funds and enhanced strategies contribute significantly to this situation.

6.3 Concluding remarks

This study examined the performance of active unit trusts in seven performance periods that range over twenty years. The benchmark against which these funds were evaluated is the FTSE/JSE All Share Index. In this empirical analysis, we see that the South African investment funds situation is very different from the United States situation that emerges in the literature review.

When evaluating the empirical results it is important to take into consideration that investment funds should be viewed as a long-term investment. If we now look at the performance figures, we see that over a twenty-year period the average funds delivered a return of 16.87 percent and the index a return of 16.62 percent. This difference is not that significant. If it is assumed that an index tracker fund delivered the same return as the index, and after taking expenses into consideration, then it is obvious that the average fund manager still has the ability to perform better than the index.

The only problem is that over this period 40 percent of the active funds underperformed against the index. Therefore, the question remains how an investor can know what the winning fund will be. In this case, the performance of the index is still a better option than choosing one of the 40 percent that underperformed. Over the shorter periods, the average active fund underperformed against the index. According to the Sharpe ratio, the index have been a better risk-adjusted investment over all of the longer periods, but in the shorter periods the index was only a better risk-adjusted investment in two of the four periods. .

Although active funds have on average delivered an acceptable performance, there are still a few other reasons why the growth of index funds, and in particular index unit trusts, have been so slow in South Africa in comparison with the rest of the world.

Investors do not want to accept mediocre returns when they have a chance of earning above average returns. This is why investors do not opt for index funds, although we have seen that, except for one of the evaluation periods, 50 to 60 percent of active funds underperform against the index.

In the US, investing in index funds is strongly advised on the grounds that active funds charge much higher expense ratios than index funds do. In our market, average index fund expenses are very similar to those of active funds and have hindered the development of these funds.

The average person consults his broker to advise him on the best possible investment. Unfortunately, brokers receive a commission from investment companies for selling their products. The result is that investors are not always aware of what is available to them in the market. In addition to this problem, investment companies tend to spend much more money on advertising active funds than their index funds.



Although these reasons do not provide a clear-cut explanation for the slower than expected growth of index funds, exchange-traded funds and enhanced strategies may have stood in the way of the growth of index unit trusts.

Exchange-traded funds have the same aim as index unit trusts, but have lower costs and are a more liquid product. The market value of exchange-traded funds in South Africa have reached a value of ZAR 6 billion since inception in 2001, compared to the ZAR 1.4 billion market value of index unit trusts.

Investors also tend to prefer unit trusts that make use of enhanced strategies. These funds have a lower expense ratio than active funds and provide the same risk profile as index funds with 'enhanced' returns.

6.4 Recommendations

In all empirical research, a few concerns with the methods used to obtain the results emerge. I have tried to address some of these concerns, but the rest remains a challenge for future studies.

The first concern regards the data that was available and the size of the market. In some periods, the data was very limited. In one period, there were only five funds for evaluation and it therefore lacked substance for drawing general conclusions. In five years' time, the situation will be different and future researchers will be able to include more funds in their data sample.

The South African unit trust industry is still very young and throughout the twenty-year period numerous funds have merged or been terminated. It is therefore obvious that survivorship bias exists in these results.

As is previously noted, the study is lacking because the performance of index unit trusts has not been compared with the performance of the index. The reason for this is that the data available for these funds covers seven years only, which is too short a period to warrant conclusive judgements. Future studies may look into this when adequate data is available. An interesting empirical research project would be to compare the performance of index unit trusts with exchange-traded funds.



REFERENCE LIST

- Beale, J.P., Edwards, M.D., Firer, C., Hendrie, J.N. & Scheppening, D.C. 2001. The Persistence of Performance of South African Unit Trusts. *South African Journal of Business Management*, 32(2): 1-8.
- Bernstein, P.L. 1992. *Capital Ideas*. New York: Free Press.
- Biepeke, N. & Fish, T. 2002. Regional African Stock Markets Indices. *South African Journal of Business Management*, 33(1): 11-19.
- Bodie, Z., Kane, A. & Marcus, A.J. 1999. *Portfolio Management*. Fourth edition. Singapore: McGraw-Hill.
- Bogle, J.C. 1995. The Triumph of Indexing. *The Vanguard Group*, April: 1-45.
- Bogle, J.C. 1998a. An Index Fund Fundamentalist. *Journal of Portfolio Management* 28(3): 31-38.
- Bogle, J.C. 1998b. The Implications of Style Analysis for Mutual Fund Performance Evaluation. *Journal of Portfolio Management*, 24(4): 34-42.
- Bogle, J.C. 2000. The First Index Mutual Fund: A History of Vanguard Index Trusts and the Vanguard Index Strategy [Online]. Available: http://www.vanguard.com/bogle_site/bogle_speeches.html. [2004, 29 January].
- Brown, M. 2003. Exchange Traded Funds – A New Product for South African Investors. *Unit Trust Survey*, 61: 34-37.
- Brown, S.J. & Goetzmann, W.N. 1995. Performance Persistence. *The Journal of Finance*, 50(2): 679-698.
- Carhart, M.M. 1997. On Persistence in Mutual Fund Performance. *The Journal of Finance*, 52(1): 57-82.
- Chen, C. & Stockum, S. 1986. Selectivity, Market Timing, and Random Beta Behaviour of Mutual Funds: A Generalized Model. *Journal of Financial Research*, 9: 87-96.

Chiang, W. 1998. Optimizing Performance, in A. Neubert (ed.). *Indexing for Maximizing Investment Results*. Chicago: GPCo Publishers.

Chordia, T. 1996. The Structure of Mutual Fund Charges. *Journal of Financial Economics*, 41: 3-39.

De Lange, L. 1996a. Hoe om 'n Eenheidtrust te Kies. *Finansies & Tegniek*, 21 June: 65.

De Lange, L. 1996b. Waarom die Trusts Versigtig is. *Finansies & Tegniek*, 18 October: 56.

De Lange, L. 2004. Beursverhandelde Fondse Raak Gewild. *Finansies en Tegniek*, 17 Maart: 24.

Delbecque, B. 2004. Trends in the European Investment Fund Industry in the fourth Quarter of 2003 [Online]. Available: http://www.fefsi.org/Unrestricted_Area/frameset.htm. [2004, 12 April].

Dellva, W. 2001. Exchange-Traded Funds Not For Everyone. *Journal of Financial Planning*, April: 110-124.

Ellis, C.D. 1975. The Loser's Game. *Financial Analysts Journal*, July/August: 19-26.

Elton, E.J., Gruber, M.J. & Blake, C.R. 1996. The Persistence of Risk-Adjusted Mutual Fund Performance. *Journal of Business*, 69(2): 133-157.

Estelle, J., Ferrier, G., Smalhout, J. & Vittas, D. 1999. Mutual Funds and Institutional Investments. World Bank Policy Research Paper 2099.

Fabozzi, F.J. 1999. *Investments: Investment Analysis*. Second edition. New Jersey: Prentice-Hall.

Federation Europeenne des Fonds et Societes d'Investissement (Fefsi) [Online]. Available: <http://www.fefsi.org>. [2004, 22 May].

Fortin, R & Michelson, S. 1999. Fund Indexing Vs Active Management: The Results Are... *Journal of Financial Planning*, 12(2): 74-81.

Fortin, R & Michelson, S. 2002. Indexing Versus Active Mutual Fund Management [Online]. Available: http://www.fpanet.org/journal/articles/2002_Issues/jfp0902-art7.cfm. [2004, 22 January].

Frino, A. & Gallagher, D.R. 2001. Tracking S&P 500 Index Funds. *Journal of Portfolio Management*, 28(1): 44-54.

Fuhr, D.A. 2002. Exchange Trade Funds Around the World – December 28, 2001 [Online]. Available: http://www.bombata.com/spreadsheets/Global_ETFs_MS_122801.pdf. [2004, 29 April].

Fuhr, D.A. 2003. Exchange Traded Funds: A Global Overview, Year-End 2002 [Online]. Available: http://www.exchange-handbook.co.za/articles_story.cfm?id=43104. [2004, 29 April].

Garvin, T. 1995. A Study of the Relative Performance of South African Unit Trust Fund Managers Utilizing the Portfolio Change Measure Technique. MComm-thesis, University of Cape Town, Cape Town.

Gastineau, G.L. 2001. Exchange-Traded Funds: An Introduction. *The Journal of Portfolio Management*, Spring: 88-96.

Gilbertson, B.P. 1976. *The Performance of South African Mutual Funds*. Johannesburg: Johannesburg Consolidated Investment Company (Unpublished Report no F76/84).

Gilbertson, B.P. & Vermaak, C. 1982. The Performance of South African Mutual Funds: 1974-1981. *The Investment Analysts Journal*, 20: 35-45.

Goetzmann, W.N. & Ibbotson, R.G. 1994. Do Winners Repeat? Patterns in Mutual Fund Return Behaviour. *The Journal of Portfolio Management*, 20(2): 9-18.

Grinblatt, M. & Titman, S. 1992. The Persistence of Mutual Fund Performance. *The Journal of Finance*, 47(5): 1977-1984.

Gruber, M.J. 1996. Another Puzzle: The Growth in Actively Managed Mutual Funds. *Journal of Finance*, 51(3): 783-810.

Hendricks, D., Patel, J. & Zeckhauser, R. 1993. Hot Hands in Mutual Funds: Short-Run Persistence of Relative Performance, 1974 – 1988. *The Journal of Finance*, 48(1): 93-130.

Hirt, G.A. 1996. *Fundamentals of Investment Management*. Fifth edition. [S.I.]: Richard D. Irwin.

Jensen, M. 1969. The Performance of Mutual Funds in the Period 1945-1964. *Journal of Finance*, 23(2): 389-416.

Klapper, L., Sulla, V. & Vittas, D. [S.a]. The Development of Mutual Funds Around the World [Online]. Available: <http://www.worldbank.org/research/bios/klapper/MFNov03.pdf>. [2004, 5 April].

Knight, E.T. & Firer, C. 1989. The Performance of South African Unit Trusts 1977 – 1986. *The South African Journal of Economics*, 57(1): 52-68.

Kostovetsky, L. 2003. Index Mutual Funds and Exchange-Traded Funds. *Journal of Portfolio Management*, 29(4): 80-92.

Lambrechts, H. 1988 – 2003. Unit Trust Survey. Department of Financial Management, University of Pretoria.



Lambrechts, H. 2004. Unit Trusts in South Africa: The Early Years. *Unit Trust Survey*, 61: 60-62.

Lee, C. & Rahman, S. 1990. Market Timing, Selectivity, and Mutual Fund Performance: An Empirical Investigation. *Journal of Business*, 63: 261-278.

Malkiel, B.G. 1973. *A Random Walk down Wall Street*. Norton: New York.

Malkiel, B.G. 1995. Returns from Investing in Equity Mutual Funds 1971 – 1991. *Journal of Finance*, 50(2): 549-572.

Malkiel, B.G. 1996. Not so Random. *Barron's*, 22 April: 55.

Malkiel, B.G. 2001. The Growth of Index Funds and the Pricing of Equity Securities. *Journal of Portfolio Management*, 27(2): 9-21.

- Meyer, M.C. 1998. The Persistence of Unit Trust Performance for the Period July 1985 – June 1995. *South African Journal of Business Management*, 29(3): 100-108.
- Miller, T. & Meckel, T.S. 1999. Beating Index Funds with Derivatives. *Journal of Portfolio Management*, 25(3): 75-88.
- Minor, D.B. 2001. Beware of Index Fund Fundamentalists. *The Journal of Portfolio Management*, 27(4): 45-50.
- Otten, R. & Schweister, M. 1998. A Comparison between the European and U.S. Working Paper. Limburg Institute of Financial Economics, Maastricht University, Maastricht.
- Porteba, J.M. & Shoven, J.B. 2002. Exchange Traded Funds: A New Investment Option for Taxable Investors. Working paper, Massachusetts Institute of Technology, Department of Economics [Online]. Available: http://papers.ssrn.com/paper.taf?abstract_id=302889. [2004, 4 April].
- Raubenheimer, H. 2003. Serial Correlation and TEV Bias in Index Funds. *South African Journal of Business Management*, 34(2): 45-53.
- Reilly, F.K. & Brown, K.C. 2000. *Investment Analysis and Portfolio Management*. Sixth edition. USA: Harcourt College Publishers.
- Samuelson, P.A. 1974. Challenge to Judgement. *Financial Analyst Journal*, Fall: 17-19.
- Sharkansky, S. 2002. Mutual Fund Costs: Risk without Reward [Online]. Available: <http://www.personalfund.com>. [2004, 22 January].
- Sharpe, W. 1991. The Arithmetic of Active Management. *Financial Analyst Journal*, 47(1): 7-9.
- Sharpe, W. 1966. Mutual Fund Performance. *Journal of Business*, 39(1): 119-138.
- Taylor, C.J. 1977. The Performance of South African Investment Trusts and Mutual Funds 1967 – 1976. MBA Research Report. Johannesburg: University of the Witwatersrand.

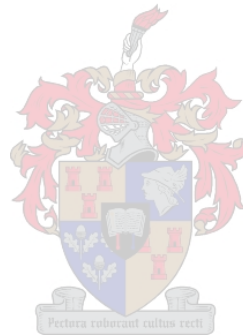
Theron, S. 1996. Waar om te Belê. *Finansies & Tegniek*, 19 July: 9.

Treynor, J. 1966. How to Rate Management of Investment Funds. *Harvard Business Review*, 44: 131-136.

Von Wielligh, J.F.C. & Smit, E. van der M. 2000. Persistence in the Performance of South African Unit Trusts. *South African Journal of Business Management*, 31(3): 120-129.

Wood, S. 2004a. Special Report: Index Tracking Funds - A C Cheaper Way to Have Access to the Market. *Financial Mail*, March 26: 82-83.

Wood, S. 2004b. Back in Favour: Inflows Surpass Those in Absolute-Return and fixed-Income Funds. *Financial Mail*, March 19: 64.



Appendix A

| THE 3-MONTH JIBAR RATE FOR THE PERIOD 1 JANUARY 1988 TO 31 DECEMBER 2003 | | | | | |
|--|------------|------------|------------|------------|------------|
| DATE | JIBAR RATE | DATE | JIBAR RATE | DATE | JIBAR RATE |
| 31/03/1984 | 19.00 | 31/03/1991 | 17.60 | 31/03/1998 | 13.44 |
| 30/06/1984 | 18.50 | 30/06/1991 | 17.50 | 30/06/1998 | 19.87 |
| 30/09/1984 | 24.00 | 30/09/1991 | 17.35 | 30/09/1998 | 21.22 |
| 31/12/1984 | 23.00 | 31/12/1991 | 16.95 | 31/12/1998 | 18.26 |
| 31/03/1985 | 23.25 | 31/03/1992 | 16.00 | 31/03/1999 | 14.89 |
| 30/06/1985 | 17.50 | 30/06/1992 | 14.60 | 30/06/1999 | 13.47 |
| 30/09/1985 | 16.00 | 30/09/1992 | 12.75 | 30/09/1999 | 11.35 |
| 31/12/1985 | 14.00 | 31/12/1992 | 12.50 | 31/12/1999 | 11.24 |
| 31/03/1986 | 12.50 | 31/03/1993 | 12.00 | 31/03/2000 | 10.10 |
| 30/06/1986 | 11.00 | 30/06/1993 | 12.30 | 30/06/2000 | 10.44 |
| 30/09/1986 | 9.65 | 30/09/1993 | 12.00 | 30/09/2000 | 10.36 |
| 31/12/1986 | 8.50 | 31/12/1993 | 10.40 | 31/12/2000 | 10.53 |
| 31/03/1987 | 8.75 | 31/03/1994 | 10.35 | 31/03/2001 | 10.60 |
| 30/06/1987 | 9.10 | 30/06/1994 | 11.10 | 30/06/2001 | 9.88 |
| 30/09/1987 | 9.35 | 30/09/1994 | 12.05 | 30/09/2001 | 9.02 |
| 31/12/1987 | 10.25 | 31/12/1994 | 12.85 | 31/12/2001 | 9.78 |
| 31/03/1988 | 11.80 | 31/03/1995 | 13.60 | 31/03/2002 | 11.03 |
| 30/06/1988 | 13.00 | 30/06/1995 | 14.40 | 30/06/2002 | 12.02 |
| 30/09/1988 | 15.00 | 30/09/1995 | 14.55 | 30/09/2002 | 12.99 |
| 31/12/1988 | 16.85 | 31/12/1995 | 15.10 | 31/12/2002 | 13.49 |
| 31/03/1989 | 17.75 | 31/03/1996 | 14.65 | 31/03/2003 | 13.42 |
| 30/06/1989 | 18.60 | 30/06/1996 | 15.85 | 30/06/2003 | 11.56 |
| 30/09/1989 | 18.30 | 30/09/1996 | 15.90 | 30/09/2003 | 9.18 |
| 31/12/1989 | 19.65 | 31/12/1996 | 17.75 | 31/12/2003 | 7.73 |
| 31/03/1990 | 19.75 | 31/03/1997 | 16.70 | | |
| 30/06/1990 | 19.75 | 30/06/1997 | 16.00 | | |
| 30/09/1990 | 18.30 | 30/09/1997 | 15.55 | | |
| 31/12/1990 | 18.50 | 31/12/1997 | 15.60 | | |

| THE 3-MONTH JIBAR RATES FOR THE FOLLOWING YEARS | | | |
|---|------------|------|------------|
| DATE | JIBAR RATE | DATE | JIBAR RATE |
| 1984 | 22.85 | 1994 | 12.10 |
| 1985 | 18.88 | 1995 | 15.21 |
| 1986 | 10.82 | 1996 | 17.03 |
| 1987 | 9.70 | 1997 | 16.94 |
| 1988 | 14.93 | 1998 | 19.46 |
| 1989 | 19.91 | 1999 | 13.35 |
| 1990 | 20.48 | 2000 | 10.77 |
| 1991 | 18.51 | 2001 | 10.19 |
| 1992 | 14.71 | 2002 | 12.97 |
| 1993 | 12.20 | 2003 | 10.88 |

Appendix B (Part1)

| YEARLY UNIT TRUST PERFORMANCES FOR THE YEAR ENDED 31 DECEMBER | | | | | | | | | | |
|---|-------|--------|-------|--------|--------|--------|-------|-------|-------|-------|
| EQUITY - General Funds | 2003 | 2002 | 2001 | 2000 | 1999 | 1998 | 1997 | 1996 | 1995 | 1994 |
| FTSE/JSE All Share Index | 16.09 | -8.09 | 29.05 | -0.11 | 61.39 | -10.05 | -4.50 | 9.32 | 8.79 | 22.65 |
| Arithmetic average | 21.85 | -0.38 | 17.42 | -6.59 | 43.84 | -6.36 | 5.97 | 10.11 | 14.42 | 25.24 |
| Median rate of return | 19.92 | -2.80 | 18.24 | -3.63 | 44.27 | -7.41 | 5.88 | 9.08 | 13.62 | 24.14 |
| ABSA General-R | 19.77 | -4.93 | 25.26 | -14.32 | 10.30 | 2.27 | -2.33 | 9.62 | 13.12 | 22.41 |
| African Harvest Core Equity | | -5.68 | 25.78 | 5.01 | | | | | | |
| African Harvest Rainmaker Equity | | 15.33 | 48.81 | | | | | | | |
| Allan Grey Equity | 26.11 | 24.16 | 32.80 | 8.86 | 117.56 | | | | | |
| BOE Aggressive Equity | | -8.23 | | | | | | | | |
| BOE Equity | | -6.19 | 10.17 | -0.30 | 17.82 | -17.12 | 23.82 | 19.47 | 18.51 | 31.92 |
| Brait Accelerated Growth | | | 11.53 | -5.59 | 45.60 | | | | | |
| Commercial Union Growth | | | | | 24.36 | | | | | |
| Community Growth | 23.70 | -1.04 | 19.82 | -0.37 | 29.21 | -4.64 | 28.59 | -0.15 | 14.04 | 31.42 |
| Coronation High Growth | 25.32 | -2.90 | 16.39 | -4.76 | 45.94 | 12.15 | -1.92 | | | |
| CU Growth | | | | | | -8.93 | -0.62 | 3.68 | 11.51 | 21.78 |
| Fairheads Equity | 18.74 | -2.70 | 11.29 | -13.31 | | | | | | |
| Fedsure Equity | | | | -20.09 | 29.17 | 6.88 | 12.05 | 5.16 | 17.96 | 27.68 |
| Fedsure Pioneer | | | | -23.49 | 23.37 | | | | | |
| Fleming Acorn Growth | | | | | 29.11 | -7.41 | 11.31 | 7.08 | | |
| FNB Growth | 36.34 | 2.94 | 25.49 | -7.78 | 56.25 | | | | | |
| Foord Equity | 19.20 | | | | | | | | | |
| Franklin Templeton Equity | | | | -12.79 | 43.53 | | | | | |
| Fraters Earth Equity | 28.95 | 17.85 | | | | | | | | |
| Futuregrowth Albaraka Equity | 23.57 | 22.77 | | | | | | | | |
| Futuregrowth Core Equity | 21.25 | -3.66 | 18.92 | -4.69 | | | | | | |
| Galaxy Aggressive | 19.61 | -4.52 | | | | | | | | |
| Galaxy Equity | 15.67 | -4.13 | | | | | | | | |
| Gryphon Imperial General Equity | 12.75 | -9.72 | 11.82 | -3.13 | | | | | | |
| Gryphon Imperial SA Tracker | 16.33 | -12.46 | 10.52 | -3.63 | 64.89 | | | | | |
| Guardbank RSA Focus | | | | | 59.94 | -15.09 | 13.15 | | | |
| Investec Equity | 33.93 | 2.03 | 33.68 | -11.16 | 50.95 | -9.07 | 12.56 | 17.30 | 13.06 | 42.04 |
| Investec Managed Equity | 18.74 | -6.28 | | | | | | | | |
| Investec Growth | | | | | | -13.67 | | | | |
| Investment Solutions Pure Equity | 19.23 | -4.00 | | | | | | | | |
| Liberty Prosperity | 18.29 | 4.62 | 18.83 | -0.26 | 63.98 | -17.60 | 0.60 | 4.82 | 17.33 | |
| Liberty RSA Equity | 19.54 | -7.47 | 23.65 | 0.88 | | | | | | |
| Liberty Wealthbuilder | 18.10 | -6.44 | 24.55 | 0.16 | 57.68 | -17.30 | -2.66 | 9.37 | 14.21 | 20.24 |
| Marriott Dividend Growth | | | | -11.99 | 50.31 | -2.06 | 5.90 | 6.50 | 7.12 | 2.16 |
| MCubed | | | | | 23.33 | -7.24 | | | | |
| Metropolitan | 18.87 | -12.08 | 12.45 | 4.77 | 31.65 | 5.67 | 13.90 | 22.33 | 24.90 | 12.41 |
| Nedbank Equity | 17.74 | | | | | | | | | |
| Nedbank Quants Core Equity | 20.12 | -0.81 | 19.28 | -3.86 | | | | | | |
| Nedbank Rainmaker | 28.84 | | | | | | | | | |
| Nedbank Growth | | -1.05 | 13.50 | -32.93 | 47.47 | 16.96 | | | | |
| Nedbank Harlequin | | -1.91 | -7.00 | -35.41 | | | | | | |
| Nedbank Synchro | | | | | 33.68 | -11.93 | | | | |
| NIB Altitude | | | 0.33 | -20.22 | | | | | | |
| NIB Horizon | | | 13.98 | 1.62 | | | | | | |
| NIB Syfrets Defensive | | | | | | -10.84 | 7.55 | | | |
| NIB Syfrets Growth | | | | | | -17.52 | 5.59 | 4.58 | 12.15 | 23.55 |
| FTNIB Syfrets Lifetime Wealth Creator | | -7.39 | 9.52 | -0.23 | 57.12 | -14.20 | | | | |
| FTNIB Syfrets Prime Select | | -18.25 | 29.57 | 2.50 | 51.09 | 5.13 | 13.24 | | | |
| NIB Syfrets Selected Opportunities | | | | | | -13.27 | 9.72 | | | |
| NIB Syfrets Strategic | | | | | | 0.95 | 7.66 | | | |
| Norwich Unit Trust | | | | | | -4.60 | 5.91 | 17.04 | 18.80 | 50.02 |
| Oasis Crescent Equity | 20.06 | 18.08 | | | | | | | | |
| Oasis General Equity | 20.82 | 20.39 | | | | | | | | |
| Old Mutual Growth Fund | 24.32 | 6.94 | 8.60 | | | -3.59 | 12.63 | 9.00 | 17.39 | 34.85 |
| Old Mutual Investors Fund | 19.37 | 2.10 | 20.84 | -3.62 | 51.40 | -7.33 | -1.68 | 8.89 | 9.86 | 30.32 |
| Old Mutual Top Companies | 27.02 | 1.44 | 10.25 | -5.22 | 43.02 | -14.92 | 5.88 | | | |
| PSG Growth | | | | | | 14.19 | | | | |
| Prudential Optimiser | 25.04 | -4.83 | 25.40 | 1.57 | | | | | | |
| RMB Equity | 37.00 | 1.87 | 20.74 | -1.51 | 46.58 | -16.46 | 7.66 | 14.78 | 21.44 | 25.84 |
| Sage Fund | 17.44 | 4.52 | 29.48 | 1.24 | 44.27 | -9.38 | -4.85 | 18.92 | 13.20 | 24.14 |
| Sanlam Future Trends | | -9.58 | 3.17 | -19.52 | 48.73 | -4.55 | -3.43 | 14.14 | 14.25 | 31.89 |
| Sanlam General | 20.16 | -1.73 | 8.40 | -2.15 | 41.22 | -4.56 | 0.05 | 9.73 | 10.93 | 16.89 |
| Southern Core Equity | | | | | 41.20 | | | | | |
| Southern Equity | | | | | 32.86 | -7.19 | -4.95 | 4.97 | 8.61 | 24.94 |
| Standard Bank Growth | | | | | | -16.39 | 5.22 | 9.16 | | |
| Standard Bank Equity | 17.43 | -7.70 | | | | | | | | |
| Standard Bank Mutual | 16.83 | -3.75 | 3.71 | -1.84 | 33.27 | -9.86 | 1.99 | 8.79 | 17.30 | 20.40 |
| Syfrets Advantage | | | | | | | 0.68 | 10.62 | 10.34 | 21.38 |
| UAL Blue Chip Growth | | | | | | | 1.96 | 6.93 | 11.18 | 13.79 |
| Woolworth's Unit Trust | 20.23 | -1.70 | 18.24 | -6.44 | | | | | | |

Appendix B (Part2)

| YEARLY UNIT TRUST PERFORMANCES FOR THE YEAR ENDED 31 DECEMBER | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|
| EQUITY - General Funds | 1993 | 1992 | 1991 | 1990 | 1989 | 1988 | 1987 | 1986 | 1985 | 1984 |
| FTSE/JSE All Share Index | 54.76 | -2.04 | 31.02 | -5.15 | 55.83 | 14.82 | -4.76 | 56.52 | 41.88 | 35.11 |
| Arithmetic average | 36.07 | 6.13 | 33.83 | 6.44 | 45.63 | 25.08 | -1.29 | 41.88 | 40.32 | 6.78 |
| Median rate of return | 35.11 | 6.55 | 33.58 | 5.61 | 44.41 | 25.59 | 0.02 | 42.19 | 41.67 | 6.56 |
| ABSA General-R | 35.99 | 7.00 | | | | | | | | |
| BOE Equity | 40.60 | 10.92 | 36.37 | | | | | | | |
| Community Growth | 28.61 | | | | | | | | | |
| CU Growth | 41.16 | 5.96 | 23.38 | | | | | | | |
| Fedsure Equity | 38.68 | 4.43 | 26.87 | | | | | | | |
| Investec Equity | 44.79 | 4.74 | 37.25 | -2.86 | 43.42 | 20.88 | | | | |
| Liberty Wealthbuilder | 37.94 | 10.05 | 32.34 | 9.56 | 46.17 | 32.33 | -1.30 | 41.79 | 39.45 | 11.76 |
| Marriott Dividend Growth | 31.98 | 8.71 | 30.47 | 5.11 | 43.87 | | | | | |
| Metropolitan | 29.90 | 8.52 | | | | | | | | |
| NIB Syfrets Growth | 34.22 | 15.10 | 41.12 | 15.74 | 48.85 | 24.94 | | | | |
| Norwich Unit Trust | 51.89 | 6.97 | 24.65 | 2.05 | 40.90 | | | | | |
| Old Mutual Investors Fund | 41.49 | -5.13 | 36.77 | 3.06 | 51.96 | 25.79 | 5.83 | 53.81 | 47.79 | 4.30 |
| Safegro | | | 30.98 | | | | | | | |
| RMB Equity | 42.91 | 0.58 | 37.57 | 4.39 | 51.29 | 24.43 | | | | |
| Sage Fund | 33.33 | 1.26 | 36.65 | 9.65 | 40.63 | 27.14 | -0.32 | 31.75 | 46.70 | 4.55 |
| Sanlam Future Trends | 31.64 | 4.83 | 44.69 | | | | | | | |
| Sanlam General | 29.55 | -6.90 | 33.58 | 16.19 | 36.88 | 16.86 | 0.37 | 43.09 | 28.86 | 2.80 |
| Southern Equity | 30.48 | 13.59 | 41.58 | -1.48 | 42.51 | | | | | |
| Standard Bank Mutual | 26.39 | 13.30 | 30.88 | 9.79 | 44.94 | 25.59 | 1.14 | 42.59 | 35.24 | 8.57 |
| Syfrets Advantage | 30.71 | 6.55 | | | | | | | | |
| UAL Blue Chip Growth | 39.07 | 5.99 | 30.02 | 6.11 | 56.15 | 27.74 | -13.48 | 38.25 | 43.88 | 8.69 |

