

1. Introduction

There has over the last 10 years been a growing worldwide tendency for those invested in property to hold their property assets in listed, tradable vehicles rather than as direct property holdings. These listed funds allow investors a liquid market to trade property assets. The funds also provide the opportunity for the diversification of the risk of a particular property as the building is held within a portfolio of assets, grouped together in a single listed entity.

Traditionally, property acquisition has tended to be opportunistic, rather than follow a specific strategy (Firstenberg 1988). Property funds were assembled without consideration to the particular diversification characteristics the property might have in relation to the others in the fund. A consciously diversified approach to building a property portfolio may limit the volatility of returns shown by the portfolio.

The converse strategy is currently the trend. Focussed property funds, targeting a particular sector of the property markets, are gaining popularity internationally. These funds allow investors the choice of property sector that corresponds to their risk profile, while allowing asset managers to concentrate on their core competencies. These focussed funds may, however, be missing out on opportunities to diversify some of the risk inherent to properties in the portfolio.

Property Unit Trusts (PUT's) currently listed on the JSE have been selected as the subject of this analysis. The value of the individual funds in this sector has grown

tremendously over the last 5 years, particularly through the merging of a number of funds. This growth enables the investigation of the risk characteristics of the fund as properties are added.

Further, because there are legal restrictions on the gearing of these trusts, the relative performance of the funds is not influenced by the amount of gearing they have. This makes analysis of the funds easier.

This report investigates PUT's to assess if diversification benefits have been achieved in the building up of property portfolios. It also attempts to determine if greater levels of diversification have been achieved by funds that include different types of properties within a portfolio, rather than focussing on a specific property type.

2. Literature Review

2.1 Property

Property is essentially the provision of space or shelter at a specific location for a specific business function (Pearce 1997). As an asset, it is valued on a future income stream, and the certainty of this income stream. In minimizing the risk of this income stream, a quality location is as important as a quality tenant is.

In the South African investment market, Equities have traditionally offered a high growth and high-risk asset, with little income over the period of investment. Interest bearing investments, on the other hand, offer high income, with little growth and low risk. Property bridges these extremes, offering both growth and income, at relatively

low risk. This low risk is achieved through the certainty of the cashflow derived from these investments. Figure 2.1 below reflects the total pre-tax returns of the different asset categories in South Africa measured over the years 1976 to 1995.

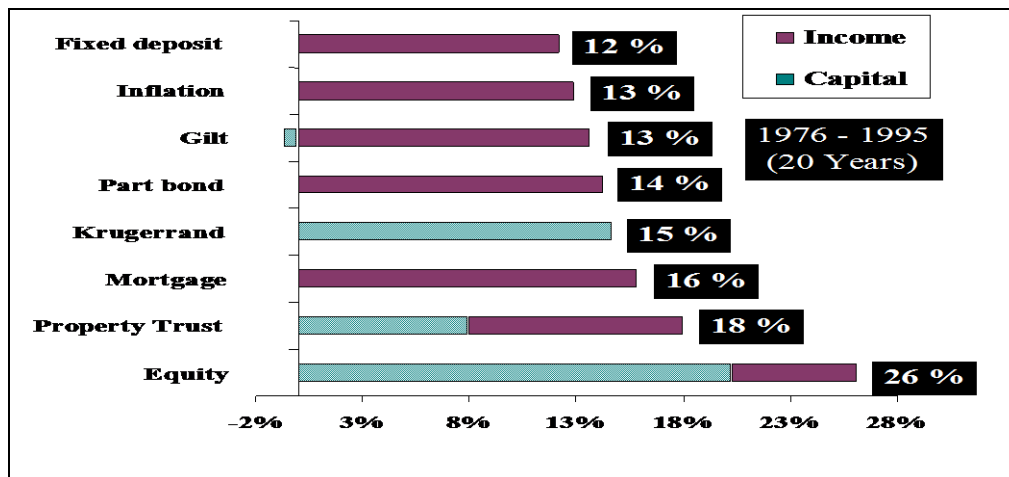


Figure 2.1 : Total Returns of S.A. asset classes

Source: The Fleming Martin guide to investment returns (1996).

As an asset valued on future income stream, a property investment is really a portfolio of leases with different maturates and bond like cashflows. In a sense, it consists of bond equivalents, called leases, and a call option on the residual value. Zisler (1988:179), however, argues that most investors or valuers do not look at property in this way, and that property and its components are usually analyzed outside the mainstream of modern finance. Property acquisitions have traditionally been opportunistic, without reference to portfolio theory in assembling a portfolio of properties, and without reference to a risk/return analysis.

2.2 Listed Property

There is an increasing international trend to place property holdings within listed vehicles, and this sector has grown tremendously over the last 10 years.

In the United States of America, property holding are listed on the stock exchange in 'Real Estate Investment Trusts' (REIT). These REIT's specialize in acquiring, developing and managing real estate. There are over 190 publicly traded REIT's, with a market value of almost 0.5% of the total US public equities market. In a presentation to the Investments Analysts Society, David Green (1997) made the point that US REIT's traded at a premium to net asset value during the 1990's, unlike S.A listed property, which trades at a discount.

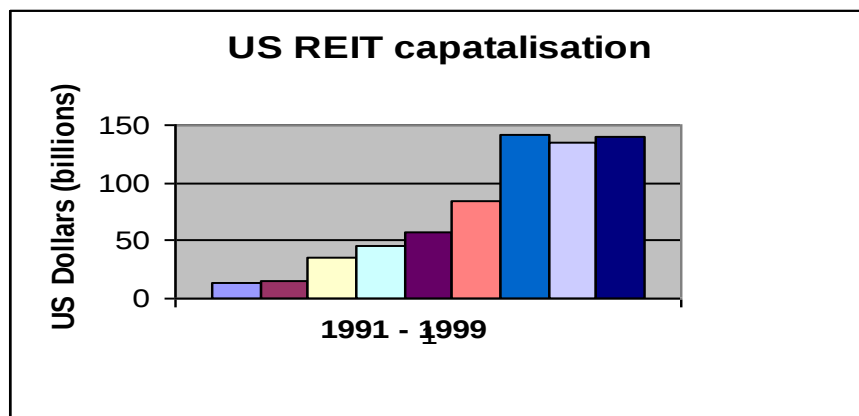


Figure 2.2 - Growth of REIT's in the USA.

Source : Boonzaaier (February 2001)

In Australia, the first Listed Property Trust (LPT's) was launched in the 1970's, and the market has grown incrementally since then (see figure 2.3 below). There are currently 42 LPT's, with a combined market capitalization of over 25 billion Australian dollars.

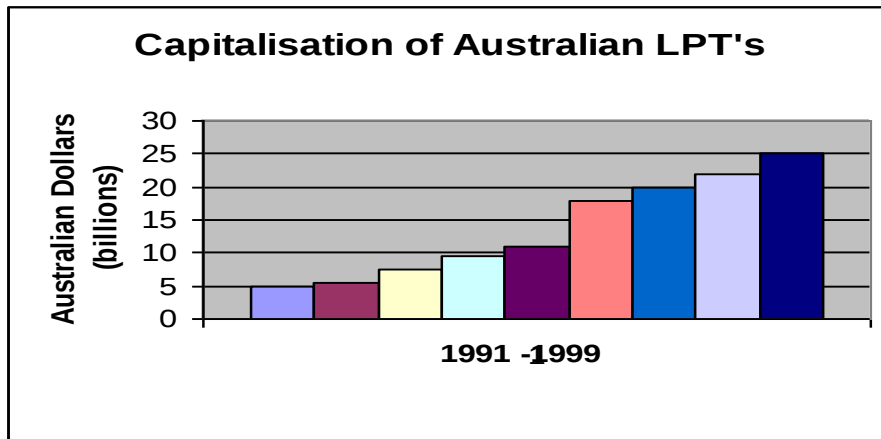


Figure 2.3 – Growth of LPT's
Source: Boonzaaier (Feb 2001)

Green (1997) points out like the American scenario, these trusts trade at a premium to net asset value. The current premium is about 6%. The fact that both the American and the Australian property unit trusts trade at a premium to net asset value would tend to imply that extra value is added in recognition of the diversification potential within the fund.

Listed vehicles overcome some of the traditional problems associated with investing directly in physical property assets in that they provide:

- Divisibility of the assets, making it possible to acquire a portion or share in a property, rather than purchasing the entire property for a considerable sum of money
- Liquidity of the assets, making these more easily tradable,
- Specialized management for the properties, taking this burden away from the investor.
- The opportunity for diversification across a range of properties.
- The opportunity to address the difficulty of performance measurement in the

property sector.

The Building Owners and Managers Association (BOMA) (1995:9) report diversification within the property sector as an advantage of purchasing listed property unit trusts. This advantage, however, may be eroded through the composition of this unit trust, specifically now that the international trend is to creating specialized property funds, as will be discussed below.

2.3 Property Unit Trusts

The South African version of a REIT or a LPT is a Property Unit Trust (PUT). PUT's are financial intermediaries that provide investors with the opportunity to own a portfolio of property investments. PUT's are highly regulated mechanisms for listing property. Funds are regulated in that they cannot be geared, and are incentivized to distribute the income received. If all income is distributed, then the PUT is exempt from taxation on this income. All properties held in the fund must be wholly owned, and no single property may account for more than 25% of the value of the portfolio. This regulation in particular recognizes the diversification opportunities inherent in PUT's.

PUT's were launched in 1976 in an attempt to provide smaller investors with access to property investments. This did not transpire, however, as much of the stock in these companies was taken up by large institutions. The vehicle was particularly attractive to Pension Funds, who are themselves not taxed, and who could enjoy the benefit of tax-free income from this investment vehicle.

A PUT protects the underlying property asset contained within it. The value of the property cannot be eroded by the fluctuations in the market, as this value is based on the income stream generated, and not on market sentiment surrounding the property sector. These factors have given rise to a less volatile, less risky investment class.

As such, PUT's have flourished with a current market cap of almost R 5 billion (see Appendix 1). This value has been relatively stable since the early 1990's, but the market has seen a number of funds being united, being de-listed, or placed in the Property Loan Stock sector so that the properties can be geared. There were 17 PUT's listed on the stock exchange in 1997, while there are only 8 currently listed. As such, the individual value of these 8 remaining stocks have grown tremendously since the mid 90's.

The PUT sector has not experienced the exponential growth as seen in REIT's and LPT's as discussed above, but this growth is anticipated. The Financial Services Board (1997:11) reported that institutions held 90% of their property directly in 1996. Boonzaaier (Feb 2001) estimates that by 2005, 80% of property will be held in unitized or securitized funds. There is also legislation planned that would allow PUT's to gear their assets. This should make PUT's more attractive, and allow them to compete with property loan stock sector, which has seen substantial growth over the last 3 years.

According to Boonzaaier (March 2001), PUT's currently trade at a slight deficit to net asset value. He asserts that most PUT's are undervalued between 3% and 5%. Thus, it

would seem that investors in the South African PUT market do not ascribe additional value to the opportunities for diversification inherent in a PUT.

2.4 Listed Fund Focus

The diversification offered by a fund of different properties relates to the specific risks that each individual property is exposed to. These may be locational risks or problems associated with the configuration or use of the property. No diversification is offered outside the property sector, and if market sentiment towards the long-term sustainability of the political environment is negative, then the property sector as a whole will be effected.

The property sector does, however, comprise a number of different usage differentials. There may be factors that influence only one usage sector, while others are not affected. For example, the South African retail property sector posted the highest returns from 1997 to 1999, as reflected in table 2.1 below. Other sectors trailed retail, with industrial outperforming offices in 1996, 1997 and 1998, while offices rallied in 1999.

But, in 2000, a number of factors such as cellphones, gaming and the high petrol price reduced disposable income. The retail sector suffered, and as a result retail space was not in as great a demand as the year before. Retail tenants could also not sustain the same level of rental. Thus, returns on retail property were down in 2000, and office developments posted a better return.

Table 2.1 – Returns for the South African Property Market

Year	1995	1996	1997	1998	1999	2000
Retail	16.9%	17.2%	23.0%	9.9%	17.6%	10.5%
Office	14.8%	10.1%	12.9%	1.9%	9.7%	12.8%
Industrial	13.5%	17.9%	16.8%	2.2%	8.3%	7.1%
All property	15.3%	14.1%	17.5%	5.6%	13.7%	11.3%

Source - Sappix (2001)

It is also useful to note the variation in returns across the different sectors in any given year. In 2000, the returns offered by offices and industrial buildings differed by over 5%. The year before, the difference in returns in retail and industrial property was almost 10%. Thus, diversification within different property usage sectors may also be useful. Many funds, however, have marketed themselves as having a specific focus. This is a growing trend both internationally, and within South Africa.

In Australia, for example, Macquarie Bank manages 4 listed property trusts, each with a specific focus. These are:

- Macquarie Office
- Macquarie Goodman Industrial
- Macquarie CountryWide
- Macquarie Leisure

Each of these funds is listed on the Australian stock exchange, and offers investors the opportunity to invest in the property sector that has the risk/return characteristics they are comfortable with. But, these specialist funds may be missing out on diversification opportunities. The fact that Macquarie finds a market for their Property Securities Trust seems to confirm this. “The Macquarie Property Securities Trust gives you access to the Australian property market through an actively-managed portfolio of around 20 listed property securities, spread across commercial, retail, infrastructure, tourism and industrial property sectors.” (Macquarie, 2000)

2.5 Portfolio Theory

In the 1950's, Harry Markowitz identified the collective importance of all the investor's holdings. Not only was the risk and expected return of each investment important, but also the covariance of these expected returns to those of other risky investments. If covariance is negative, then one investment will perform well while another does not, and the volatility or degree of risk inherent in the portfolio will be minimized.

Bodie (1999) explains that the risk of a portfolio can be minimized for a given expected return by the selection of a portfolio lying along a so-called efficient frontier. All portfolio managers wish to hold an efficient portfolio, providing the greatest possible level of expected return for a given level of risk. If the level of risk were minimized through diversification, without compromising returns, this efficient frontier can be maximized.

The risk that is minimized by portfolio theory is unsystematic or non-market risk. This is the risk attracted by particular companies or management, and particular industries, rather than that in the market as a whole. In the case of properties, unsystematic risk may be the result of geographic location, property sector, quality of tenant, period of lease, the condition of the building or the quality of the management.

Firstenberg (1988) reported that during the 80's, portfolio theory was ignored by property managers in the United States. This changed in the 1990's with asset managers consciously amassing portfolios that could be listed or securitized. International trends demonstrate that listed funds tend to be diversify geographically rather than by property sector. This reinforces the emphasis placed on location in property selection and evaluation.

2.6 Risk Pooling

An investor incurs a particular risk with regard to the value at stake within his portfolio. In adding assets to this portfolio, he may be reducing the volatility of the stock, but he is also adding to the asset value of the stock. As such the value at risk may not be diminished. This is risk pooling and is not adequate diversification as the value at risk has remained the same. To truly diversify risk, the investor should strive to bring down the value that is at risk within the portfolio. This is true risk sharing.

Typically, if an investor desires to diversify, he would buy a portfolio of shares across different sectors, with negative correlation coefficients. If the intention in building a property portfolio is to diversify risk, care should be taken to include properties with

different risk characteristics. These could include the geographic location, use or grade of the property.

But, there are market forces that affect the property market as a whole, and these characteristics may not be sufficiently different to diversify the risk of the portfolio. If this view were adopted, each property portfolio could be focussed on a set of risk characteristics, as discussed below, and the investor would diversify his risk by including shares in this property fund within a larger investment portfolio drawn from different asset classes.

2.7 Unbundling

Analysts have criticized the type of diversification practiced by conglomerates, in amassing companies operating in different sectors or industries to hedge their performance. Meyer of Fenestra (Ryan 2000) is scathing of this approach.

“Diversification is Noah’s Ark investing. That’s when you have 2 of everything in your portfolio and end up watering down your performance to unacceptably low levels”. Fenestra has consequently shunned investment in conglomerates who hold a portfolio of businesses.

There has been a growing demand from analysts and investors for South African companies to concentrate on their core business, and unbundle non-core aspects of their operations. McNulty (1999) asserts that, in most cases, shareholders have gained from the unbundling or sharper focusing of diversified groups.

Benefits of unbundling non-core assets are considerable, including:

- Unbundling allows companies to concentrate on their core business, utilizing their core skills. Better results should be attained.
- Focusing on one business segment attracts investors who are optimistic about that sector. This attracts more investors, as they are able to match that sector to their investment profile more easily. This attracts a higher volume in trading, which should lead to a greater demand for the stock, and higher values.
- Unbundling also attracts shareholders by giving them more power in the company they invest in. Power is then not controlled through pyramid structures and conglomerates, but is in the hands of those who understand the business.
- Unbundling also allows for greater transparency in reporting company results and decisions. This gives investors greater comfort, and further attracts investors.

McNulty points to the recent South African success stories – Billiton, Anglo American, Anglovaal and S.A. Breweries – who have all undergone major unbundling and focussing initiatives in the last 2 years. These moves have been favourably received by the market.

Internationally, listed property funds tend to follow a focussed approach to amassing portfolios of properties. This trend, and the recent unbundling initiatives in South Africa, has encouraged South African Property owners to adopt a similar view. It remains to be seen if this view produces better value for investors.

3. Propositions

- a. Building a portfolio of assets in a Property Unit Trust results in risk sharing rather than risk pooling, and consequently offers diversification benefits.
- b. Diversified property portfolios offer greater risk sharing benefits than focussed property portfolios.

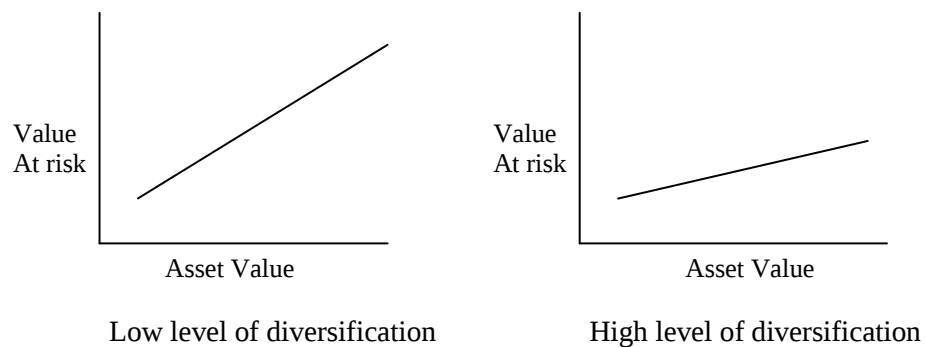
4. Research methodology

The research methodology involved investigating the 8 listed PUT's in detail to ascertain if the combination of the assets assembled have resulted in diversification of risk or merely in risk pooling.

The underlying asset value of each PUT for the last 5 years was tracked to assess the growth in the fund. The monthly volatility of each PUT over the same period was also ascertained. These variables enabled the 'value at risk' to be ascertained, the percentage volatility multiplied by the total underlying asset value of the fund.

'Value at risk' values were established for each month over the 5-year period. The value at risk was then plotted as a function of the underlying asset value of the fund. If the value at risk increases at a rate equal to the growth in the fund value, then no diversification has been achieved. If, however, the value at risk increased as the fund grew, but at a lesser rate, then some level of diversification had been achieved. A regression line was established from all of the plotted points that describe this relationship, and an equation derived for the line. The flatter the line, the higher the degree of diversification.

Figure 4.1 – Levels of diversification ascertained from the proposed research.



An equation was derived for each PUT, to test risk sharing, and for the sector as a whole, to provide a benchmark against which focused and diversified funds was measured.

The strategy employed in amassing properties for each fund was then considered. The funds with a focussed acquisition strategy were grouped, as were those with a diversified strategy. The 'value at risk' / 'asset value' relationship was then plotted for each of these groups to assess if acquisition strategy affects diversification. The diversified funds should have reflected relatively less growth in 'value at risk' as the funds grew. If this proved not to be the case, then diversification had not been achieved, and choice of strategy in amassing the fund was not relevant.

5. Limitations to the research

There are only 8 PUT's listed. For this reason, the sample was taken to be the universe, but results may be distorted by the small number of listings in the sector. Trends in the data may be obscured by good or bad management, or by the quality of specific buildings within a portfolio.

Further, the funds investigated are of varying size, with market capitalization ranging from R 133 million to R 1.35 billion (See appendix 1). According to Boonzaaier (March 2001), lack of liquidity in the market can adversely affect the value derived from a PUT. Liquidity may be adversely affected if the fund is too small to attract institutional investors, or to provide enough shareholders to guarantee ongoing trade. Boonzaier would suggest that a fund requires underlying value of at least R 1 billion to guarantee liquidity. Only 2 of the funds listed, Grayprop and Martprop, fulfill this requirement, with Sycom on R 858 million. This lack of bulk in the listed vehicles, and the resulting lack of liquidity in trading the funds, could distort the results obtained in the investigation.

As the research progressed, the issue of the different size of the funds proved not to be a problem. Each of the groups of funds, the diversified and focused PUT's, contained one of the larger funds, and a range of smaller ones (see table 7.1.25). Thus, results should not be distorted by the range of fund sizes.

6. Results

6.1 Fund Strategy

The first stage in the methodology involved investigating the 8 Property Unit Trusts to ascertain:

- How the value of the properties within each fund has grown over the last 5 years.
- Whether they followed a focussed or diversified strategy in building a property portfolio.
- How the market has responded to this strategy.

The survey of each fund follows.

6.1.1 Capital Property Fund

The Capital Property Fund (Capital) is a property fund consisting of 68 buildings, mainly industrial in nature, with a focus on high technology properties. The fund is managed by JHI.

The fund has not grown substantially in size over the last 5 years, with the value of the properties fluctuating between 350 and 395 million Rand. (See figure 6.1.1) The fluctuations in asset value are due to sales and acquisitions of individual properties, and revaluation of the property portfolio.

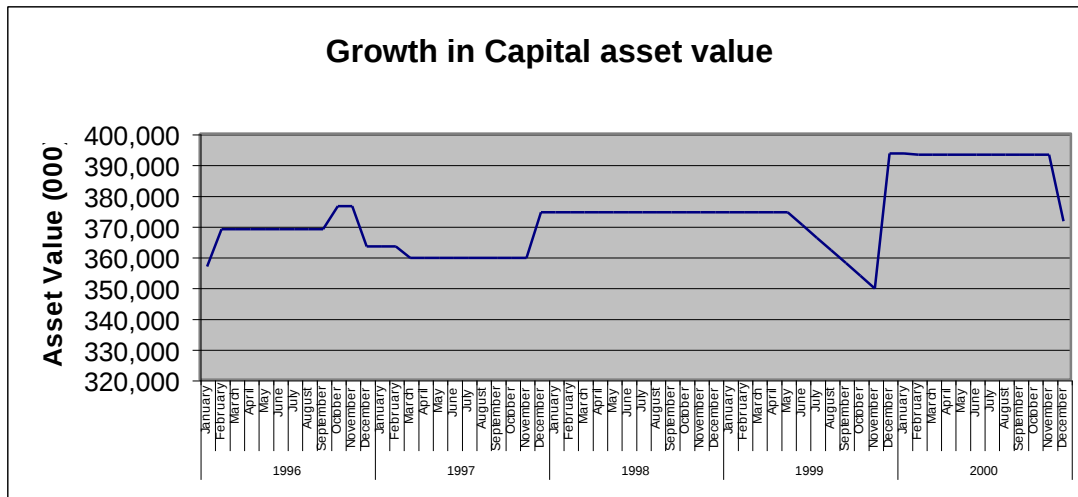


Figure 6.1.1
Growth in asset value, Capital Property Fund

The fund is largely industrial in nature, as reflected in table 6.1.1 below. This trend peaked in 1998, when over 80% of the rental income was derived from industrial property. Over the last 2 years the fund has acquired decentralized offices, and over 30% of the income is derived from this sector. For the purpose of this study this fund has been defined as a focused industrial fund, as the share of income derived from industrial buildings has fluctuated between 65% and 82% over the past 5 years.

	Retail	Offices	Industrial
1996	3.3%	20.8%	75.9%
1997	2.4%	18.4%	79.2%
1998	2.2%	16.0%	81.8%
1999	3.4%	24.3%	72.4%
2000	3.3%	31.8%	64.9%

Table 6.1.1
Sector diversification, Capital Property Fund

At first glance the properties in this fund appear to be diversified geographically (see table 6.1.2 below). But, over 62% of the properties are located in the environs of

Gauteng / Sandton / Randburg / Pretoria. The exposure to the Johannesburg CBD has declined over the past 5 years, while the involvement in Sandton and Pretoria has increased.

	Johannesburg	Gauteng	Sandton / Randburg	Pretoria / Midrand	KwaZulu / Natal	Cape Town	Mpumalanga
1996	13.0%	25.8%	15.9%	9.5%	13.8%	19.7%	2.3%
1997	11.9%	27.9%	15.3%	8.1%	14.1%	19.5%	3.3%
1998	4.8%	31.2%	16.3%	9.6%	14.7%	21.1%	2.2%
1999	6.6%	32.0%	15.6%	9.8%	11.7%	21.4%	2.9%
2000	2.6%	27.5%	22.8%	13.1%	9.9%	21.2%	2.9%

Table 6.1.2
Geographic diversification, Capital Property Fund

At the end of the last financial year, December 2000, the fund traded at a 5.1% discount to its asset value. This is significantly better than the 43% discount in 1998, but also half the 10.4% discount recorded at the end of 1999. (See table 6.1.3 below)

	Asset Value / Share (Dec 31)	Share Price (Dec 31)	Trading Discount
1996	256	204	20.3%
1997	255	210	17.6%
1998	255	145	43.1%
1999	268	240	10.4%
2000	253	240	5.1%

Table 6.1.3
Trading discount to asset value, Capital Property Fund

As we will see below, most of the funds in this sector were heavily penalized in relation to their asset value in 1998. Most funds recovered, to greater or lesser extent, by 2000.

6.1.2 CBD Property Fund

The CBD Property Fund is a closed end property unit trust established in 1981 by Sage Property Trust Managers Ltd.

The value of the fund has decreased in the last 5 years from 350 million to R223 million, mainly due to devaluation in the properties held, and sales of CBD assets at a loss. (See figure 6.1.2)

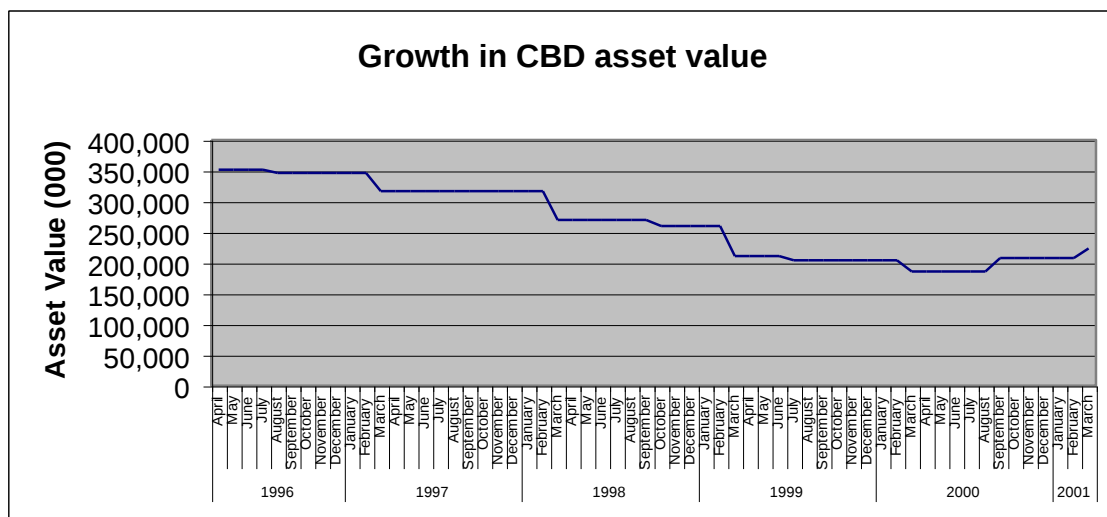


Figure 6.1.2
Growth in asset value, CBD Property Fund

The fund consists of buildings in the retail and commercial office sector, often with both usages within the same building. The office component has recently become dominant, generating 58% of the income for the fund, but only 2 years ago the retail component generated a similar percentage. The fund has thus been regarded as a diversified fund from the usage perspective.

	Retail	Offices	Parking
1997	46.0%	47.0%	7.0%
1998	51.0%	45.0%	4.0%
1999	58.0%	37.0%	5.0%
2000	34.0%	57.0%	9.0%
2001	33.0%	58.0%	9.0%

Table 6.1 4
Sector diversification, CBD Property Fund

The properties in this fund were traditionally located in the CBD's of Johannesburg and Pretoria. The fund has however divested of high percentage of CBD properties over the last 5 years, and 58.5% of the properties now held are located in Sandton and Rosebank, as reflected in table 6.1.5 below.

	Johannesburg	Braamfontein	Sandton / Rosebank	Pretoria Cbd	Gauteng Districts	Cape Town / East London
1997	46.6%	5.3%	22.6%	11.3%	5.1%	9.1%
1998	35.7%	5.9%	37.2%	6.8%	4.2%	10.2%
1999	29.8%	4.8%	44.9%	7.9%	4.2%	8.4%
2000	28.8%	6.4%	49.2%	8.5%	4.0%	3.1%
2001	24.5%	5.6%	58.5%	6.0%	3.0%	2.4%

Table 6.1.5
Geographic diversification, CBD Property Fund

Shares in CBD Property Unit Trust traded at 182 cents at the end of March 2001, and were consequently undervalued by 10.34%. (See figure 6.1.6)

	Asset Value / Share (Mar 31)	Share Price (Mar 31)	Trading Discount
1997	259	174	32.82%
1998	237	200	15.61%
1999	199	180	9.55%
2000	196	175	10.71%
2001	203	182	10.34%

Table 6.1.6
Trading discount to asset value, CBD Property Fund

6.1.3 Centrecity Property Fund

Centrecity Property Fund (Cenprop) is a PUT currently holding 8 high technology properties. The fund is managed by JHI, who also manage the Capital fund discussed above.

The fund remained stable in size from 1996 to the end of 1999, when the properties were re-valued. This revaluation has been the major source of growth over the last year, with minor sales and acquisitions occurring. (See figure 6.1.3 below)

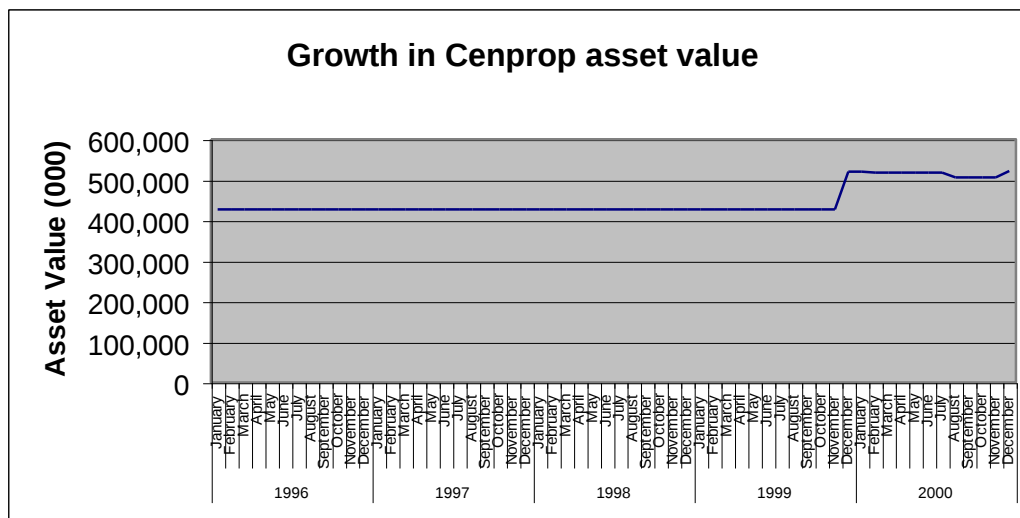


Figure 6.1.3
Growth in asset value, Centrecity Property Fund

The fund has over the last 5 years been almost evenly split between retail and office usages, with the proportional split fluctuating over the period. At the end of 2000, the fund income from the commercial office component had increased to 57.7% of the total rental income. Because the proportion of retail sector income remains high at over 42%, this fund has been considered a diversified one for the purpose of this study.

	Retail	Offices	Industrial	Residential
1996	50.2%	49.8%	0.0%	0.0%
1997	52.3%	47.7%	0.0%	0.0%
1998	48.5%	51.5%	0.0%	0.0%
1999	46.5%	53.5%	0.0%	0.0%
2000	42.3%	57.7%	0.0%	0.0%

Table 6.1.7

Sector diversification, Centrecity Property Fund

The name Cenprop is a misnomer in that properties are in major nodes, but not necessarily in city centers. The fund was traditionally focused on the Johannesburg, Rosebank Sandton area, but has over the last 2 years diminished its holdings here and grown the component in Cape Town and Natal. (See table 6.1.8 below)

	Johannesburg	Rosebank	Sandton /	Natal	Cape Town
	CBD		Hyde Park		
1996	17.6%	52.7%	10.5%	8.4%	10.8%
1997	10.5%	58.7%	10.3%	7.8%	12.8%
1998	12.6%	55.7%	11.1%	7.9%	12.8%
1999	12.7%	57.6%	9.5%	7.6%	12.7%
2000	19.3%	38.5%	9.0%	11.7%	21.5%

Table 6.1.8

Geographic diversification, Centrecity Property Fund

As with many of the other PUT's the discount to the asset value that Cenprop trades at peaked in 1998. This discount had halved by the end of 2000, but remains relatively high at over 20%.

	Asset Value / Share (Dec 31)	Share Price (Dec 31)	Trading Discount
1996	261	180	31.0%
1997	261	150	42.5%
1998	261	148	43.3%
1999	318	250	21.4%
2000	319	250	21.6%

Table 6.1.9

Trading discount to asset value, Centrecity Property Fund

6.1.4 Grayprop

Allan Gray Property Trust is a listed property unit trust established in 1983. Originally known as the Standard Bank Property Fund, the Trust was renamed the Allan Gray Property Trust on 1 September 1997 after Allan Gray Limited purchased a controlling share in the company responsible for the management of the Trust. This management company, which was renamed Allan Gray Property Trust Limited, is advised by Allan Gray Limited, whilst the properties owned by the Trust are under the administration of Standard Bank Properties (Proprietary) Limited and Anglo American Property Services (Proprietary) Limited.

The fund amalgamated with the Mainpro Property fund in January 1998, boosting the value of property assets from R555 million to well over R1 billion. In August of the same year, the Apex decentralized office portfolio was acquired, raising the asset value to almost R1.2 billion. The portfolio was later revalued, and remained stable at the R 1.1 billion level until September 2000.

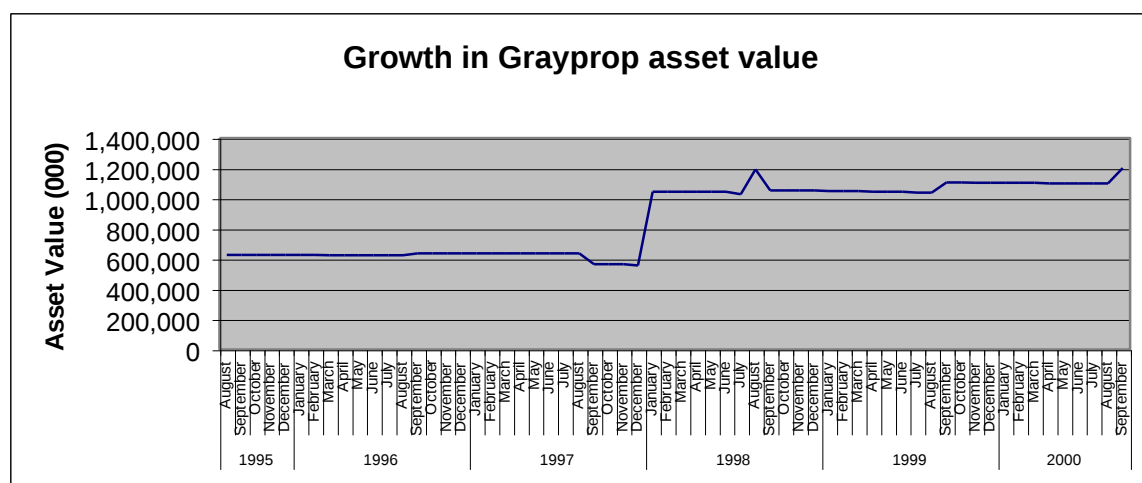


Figure 6.1.4
Growth in asset value, Grayprop

The properties in Grayprop were traditionally spread over the Retail, Office and Industrial Sectors, but since 1998 the fund has concentrated more and more on Retail properties. There remains a relatively high percentage of office buildings, at over 25%, and some industrial and other specialized properties. (See table 6.1.10) Because of the diversified history of the fund, and the fact that it remains well diversified geographically (as will be seen below), Grayprop has been treated as a diversified fund in this study.

	Retail	Offices	Industrial	Other
1996	31.9%	33.0%	24.5%	10.6%
1997	33.3%	33.3%	22.2%	11.1%
1998	57.6%	27.2%	9.8%	5.4%
1999	59.6%	27.7%	8.5%	4.2%
2000	60.2%	26.5%	8.2%	5.1%

Table 6.1.10
Sector diversification, Grayprop

The fund is highly diversified geographically, and appears to be becoming more so over time. In 1996 the fund was heavily invested in Johannesburg and the East Rand, but by 2000 this focus had been lost in favour of a general spread of locations. The proportion of income derived from Cape Town, Pretoria and even Bloemfontein has grown substantially over the years.

		Sandton /		Bedfordview			Durban /	
	Jhb.	Midrand	Randburg	/ Benoni	Pretoria	Bloem.	Westville	Cape Town
1996	20.9%	14.9%	12.0%	34.2%	0.0%	0.0%	13.9%	4.1%
1997	22.0%	15.1%	9.8%	34.6%	0.0%	0.0%	14.3%	4.2%
1998	17.4%	17.2%	7.3%	23.3%	12.5%	2.6%	7.2%	12.7%
1999	17.0%	15.0%	7.0%	18.0%	17.0%	4.0%	6.0%	16.0%
2000	14.0%	15.0%	7.0%	17.0%	18.0%	4.0%	6.0%	19.0%

Table 6.1.11
Geographic diversification, Grayprop

At the September 2000 yearend, Grayprop traded at a slight discount to its asset value. This discount is marginal compared to the discount of 34 % experienced in 1998, and the other trusts in the sector.

	Asset Value / Share (Sept 30)	Share price (Sept 30)	Trading Discount
1996	231	166	28.1%
1997	210	185	11.9%
1998	197	130	34.0%
1999	200	171	14.5%
2000	208	207	0.5%

Table 6.1.12

Trading discount to asset value, Grayprop

6.1.5 Martprop

The Marriott Property Fund (Martprop) is a closed end property unit trust consisting of 175 buildings and managed by Marriott Property Fund Managers Limited.

The fund was formed in April 1998 when the Ukhozi Property Fund acquired the assets and liabilities of 4 other funds, Umdoni, Tamboti, Highgate and Highstone. 5 smaller funds were merged. The fund then changed its name to the Marriott Property Fund. This acquisition gave the fund an asset value of R 1.2 billion, which made it the largest fund in the PUT sector. The asset value of the property portfolio has remained relatively constant at this level since this.

The Highgate Fund, one of the merged entities, has been chosen to provide figures relating to before the date of the merger as it had the same industrial focus as the merged entity does, and the geographic split of the properties closely resembles that of Martprop.

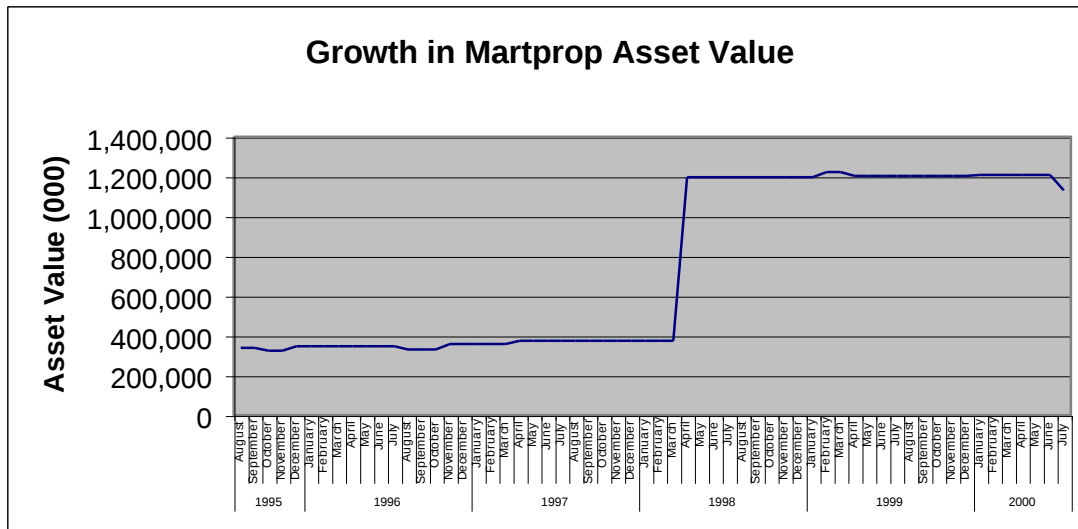


Figure 6.1.5
Growth in asset value, Martprop

The fund has been consistently industrial in nature, as reflected in table 6.1.13 below.

The proportion of income derived from the retail and offices sector has fluctuated over the years, but is small in comparison to the industrial income.

	Retail	Offices	Industrial
1996	26%	7%	67%
1997	26%	7%	67%
1998	12%	24%	64%
1999	12%	24%	64%
2000	12%	23%	65%

Table 6.1.13
Sector diversification, Martprop

Properties in the fund are concentrated in KwaZulu Natal, with over 56% of the properties held during the 2000 financial year located there. This geographic focus, coupled with the focus on Retail sector, confirms Martprop as a focused fund for the purpose of this study.

	KwaZulu Natal	Gauteng	Cape
1996	63%	22%	15%
1997	63%	22%	15%
1998	54%	36%	10%
1999	54%	36%	10%
2000	56%	35%	9%

Table 6.1.14
Geographic diversification, Martprop

At the end of the 2000 financial year Martprop fund traded at a 6.9% discount to its asset value. This reflects a tremendous recovery from 1998, when it traded at a discount of 38.4%, and is relatively low for the sector.

	Asset Value / Share (July 31)	Share Price (July 31)	Discount
1996	904	825	8.7%
1997	942	770	18.3%
1998	203	125	38.4%
1999	194	184	5.2%
2000	188	175	6.9%

Table 6.1.15
Trading discount to asset value, Martprop

6.1.6 Pioneer Property Fund

The Pioneer Property Fund was established in 1979, and is managed by Sage Property Trust Managers, Ltd. At the end of March 2001, the fund comprised 633 lettable industrial units.

The composition of the fund has been stable over the last 5 years, but the overall asset value of the properties has declined due mainly to revaluations of the property portfolio. (See figure 6.1.6)

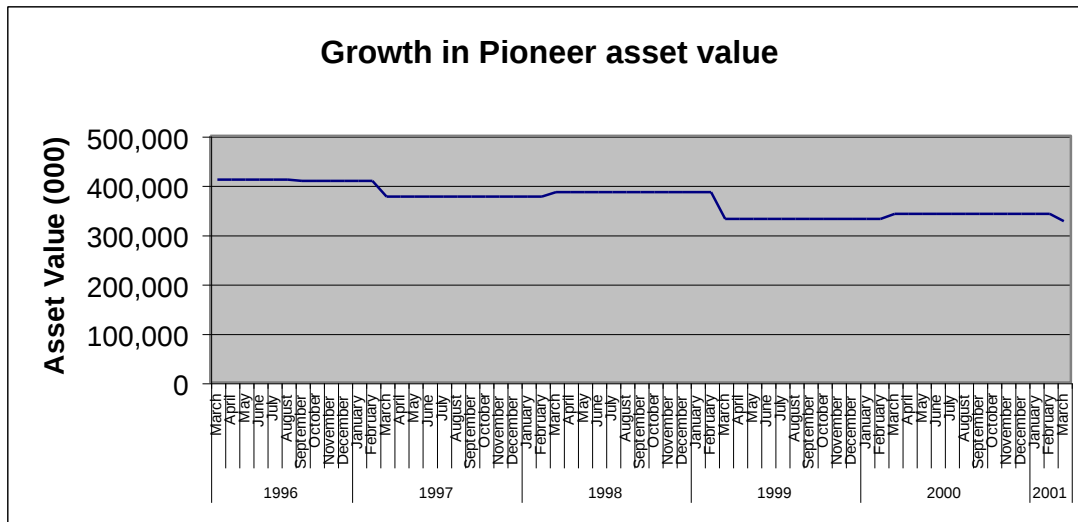


Figure 6.1.6
Growth in asset value, Pioneer Property Fund

The fund is exclusively industrial in nature, comprising small to medium sized multi tenanted industrial units. As such, and considering the geographical distribution described below, it can definitely be regarded as a focused property fund.

	Industrial	Offices	Residential
1996	100.0%	0.0%	0.0%
1997	100.0%	0.0%	0.0%
1998	100.0%	0.0%	0.0%
1999	100.0%	0.0%	0.0%
2000	100.0%	0.0%	0.0%

Table 6.1.16
Sector diversification, Pioneer Property Fund

The properties in the Pioneer portfolio are focused on the East West industrial belt of Gauteng.

	Gauteng	Natal	Cape Town
1996	100.0%	0.0%	0.0%
1997	100.0%	0.0%	0.0%
1998	100.0%	0.0%	0.0%
1999	100.0%	0.0%	0.0%
2000	100.0%	0.0%	0.0%

Table 6.1.17
Geographic diversification, Pioneer Property Fund

Pioneer shares traded at a discount of 12.7% to asset value at the end of the 2001 financial year, as described in table 6.1.18 below.

	Asset Value / Share (March 31)	Share Price (March 31)	Trading Discount
1997	417	323	22.4%
1998	421	356	15.5%
1999	359	248	30.9%
2000	368	290	21.3%
2001	355	310	12.7%

Table 6.1.18
Trading discount to asset value, Pioneer Property Fund

6.1.7 Prima Property Fund

The Prima Property Fund is a fund consisting of 11 buildings. The fund is managed by Prima Property Trust Managers Limited, a subsidiary of Commerzbank AG, a company incorporated in Germany.

Prima is the smallest fund listed in the PUT sector, and its asset value has changed little over the last 5 years. It did acquire properties on balance during 1996 and 1997, but has not done so for the last 3 years.

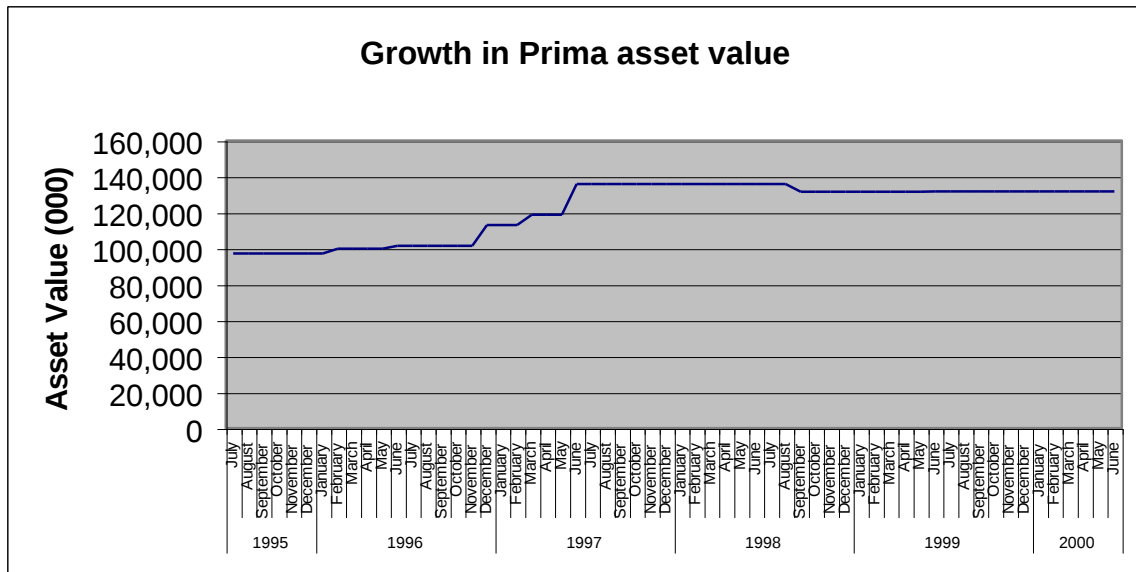


Figure 6.1.7
Growth in asset value, Prima Property Fund

Prima has always had a strong retail focus, and in the 2000 financial year the income derived from retail property was over 75% of the funds income. (See table 6.1.19)

	Retail	Commercial
1997	68.9%	31.1%
1998	69.9%	30.1%
1999	71.8%	28.2%
2000	75.3%	24.7%

Table 6.1.19
Sector diversification, Prima Property Fund

Properties are predominantly located in smaller towns in Mpumalanga, (Nelspruit & Witbank) and in Gauteng. Over the last 4 years this exposure to Mpumalanga has increased to over 60% as at the end of 2000.

	Nelspruit	Witbank	Gauteng	Cape Town
1997	32.0%	19.4%	43.7%	4.9%
1998	38.7%	17.5%	39.5%	4.3%
1999	33.2%	20.8%	41.2%	4.8%
2000	39.5%	21.2%	34.5%	4.8%

Table 6.1.20
Geographic diversification, Prima Property Fund

Because of its dependence on retail properties, and the high geographic exposure to Mpumalanga, Prima has been considered a focused fund for the purpose of this study.

The discount to asset value that Prima trades under has improved since 1998, like many of the funds in the PUT sector. Prima traded at a discount of 12% to asset value at the end of the 2000 financial year, as reflected in table 7.1.21 below.

	Asset Value / Share (June 30)	Share Price (June 30)	Trading Discount
1996	76	52	31.58%
1997	82	53	35.37%
1998	82	52	36.59%
1999	79	54	31.65%
2000	79	69	12.66%

Table 6.1.21
Trading discount to asset value, Prima Property Fund.

6.1.8 Sycom

The Sycom Property Fund is a closed end property unit trust established in 1986. Its earnings are distributed in full to unit holders.

Over the last 5 years, Sycom has grown to be the third largest listed Property Unit Trust (see figure 6.1.8). In July 1999, the Syfrets & Commercial Union fund merged

with the Newport fund, almost doubling the asset base of the former. The acquisition was paid for in Sycom shares, and the number of units on issue was consequently raised from 64.85 million to 104.83 million.

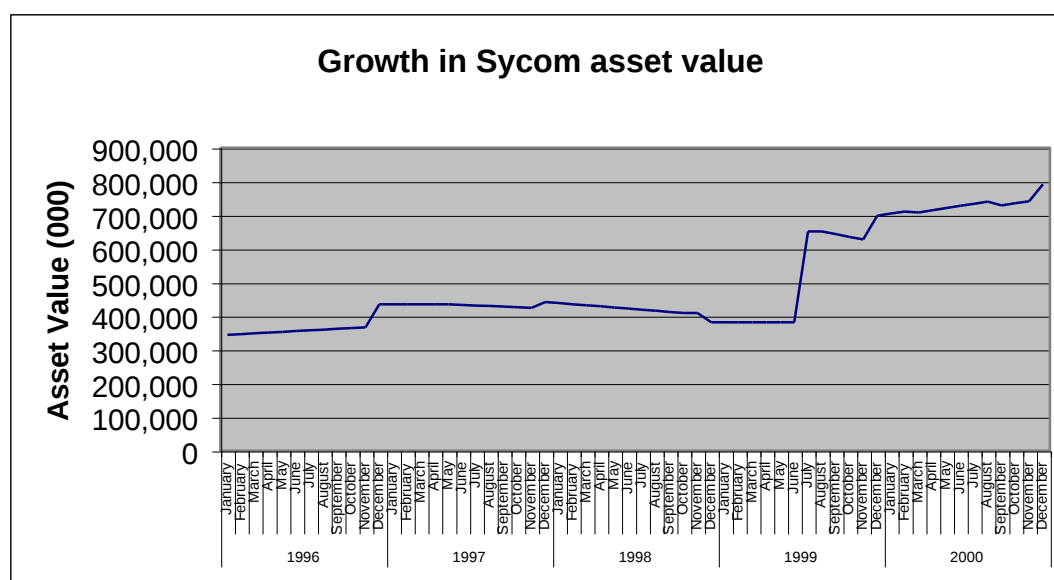


Figure 6.1.8
Growth in asset value, Sycom Property Fund

As at the end of 2000, the fund consisted of 22 buildings, with relatively equal weighting in the retail (54%) and commercial office (45%) sectors. Retail exposure comprises largely investments in regional shopping centers, while the office component is primarily decentralized office buildings.

	Retail	Offices	Industrial	Residential
1996	51%	48%	0%	1%
1997	55%	45%	0%	0%
1998	53%	47%	0%	0%
1999	47%	52%	1%	0%
2000	54%	45%	1%	0%

Table 6.1.22
Sector diversification, Sycom Property Fund

The fund is also geographically diversified, although it is highly exposed to the Johannesburg property market. Exposure in Johannesburg has decreased over the last 5 years, while involvement in the Western Cape has been increased to produce 27% of the rental income.

	Johannesburg	Pretoria	Midrand	Germiston	Western Cape
1996	69%	11%	6%	0%	14%
1997	73%	4%	7%	0%	16%
1998	73%	4%	7%	0%	16%
1999	66%	12%	1%	1%	20%
2000	58%	12%	1%	2%	27%

Table 6.1.23
Geographic diversification, Sycom Property Fund

At the end of 2000, net asset value was estimated at R 827 million, while the capitalization on the JSE was R 818 million. The stock was thus undervalued by just over 1%, low for the sector.

	Asset Value / Share (Dec 31)	Share Price (Dec 31)	Trading Discount
1996	703	485	31.0%
1997	696	515	26.0%
1998	631	425	32.6%
1999	701	630	10.1%
2000	789	780	1.1%

Table 6.1.24
Trading discount to asset value, Sycom Property Fund

6.1.9 Categorization of PUT sector

Following the above study of the different funds in the PUT sector, each fund was allocated to a grouping of focused and diversified funds, as per table 6.1.25 below. This segmentation worked out relatively well, as the 8-fund sector is split into 4 diversified and four focused funds. Further, each category had one of the two funds with assets of over R1 billion, along with some smaller funds. The accumulated asset value of each category is substantial, with the focused group at just under R2 billion, while the diversified grouping has over R 2.7 billion in assets.

	Acquisition Strategy		Asset Value (Dec 2000)	
	Diversified	Focused	Diversified	Focused
CBD Fund	X		208,021	
Cenprop	X		521,535	
Capital		Industrial		371,502
Grayprop	X		1,201,000	
Martprop		Industrial		1,130,000
Prima		Retail		131,709
Pioneer		Industrial		341,862
SYCOM	X		791,000	
Total Asset Value, Dec 2000		R 4,696,629	2,721,556	1,975,073

Table 7.1.25
Segmentation of PUT sector

6.2 Value at Risk

The second stage of the investigation was to assess by what factor value at risk for each PUT grew over the last 5 years as the underlying asset value of the stock increased.

The monthly volatility for each PUT was obtained from subtracting the lowest price for the stock listed during the month from the highest price quoted. Percentage volatility was derived from dividing this difference by the average listed value of the stock for that month. The total underlying asset value was obtained at the close of every month, and the percentage volatility was multiplied by the total asset value to derive the value at risk for that particular month.

The value at risk for each month was then plotted as a function of the net underlying asset value for that month. A trend line was obtained to determine by what factor the value at risk has grown as the asset value increased.

Scatter plots reflecting this relationship were derived for:

- each fund,
- the sector as a whole,
- focused funds collectively
- diversified funds collectively

The resultant graphs for the sector, as well as the focused and diversified funds collectively appear below, while those reflecting each fund appear in appendix 2.

6.2.1 Grouped Funds

The scatter plots for the sector, diversified funds and focused funds were statistically evaluated to determine how they could be best described by an equation. R-squared values were derived for each plot, comparing the degree of the relationship explained by each kind of equation. This comparison is shown in table 6.2.1 below.

	Linear	Logarithmic	Polynomial	Exponential	Power
PUT Sector	0.3146	0.2673	0.3183	N/A	N/A
Diversified	0.4417	0.3639	0.4676	0.3318	0.2967
Diversified - Without Cenprop	0.5028	0.4131	0.5402	0.4227	0.3680
Focused	0.3244	0.3117	0.3345	N/A	N/A
Focused - Without Pioneer	0.3345	0.3620	0.3690	N/A	N/A

Table 6.2.1
R-Squared values - each grouping

As reflected in this table, a linear equation provides a better description than a logarithmic one for all of the graphs, with the exception of the focused group without Pioneer. The linear equation describes at least 30% of the relationship, 31.46 % for the entire sector, and ranges up to over 50% for the diversified group without Cenprop.

The relationship described by a polynomial equation provides only a marginally better probability, as reflected in table 6.2.1 above, and as a polynomial relationship is more difficult to compare, the linear relationship has been selected for the purpose of this report.

As will be seen below, the trend lines derived for 2 of the funds, Cenprop and Pioneer appear to be outliers. The asset value of Cenprop increased only once during the study period, as assets were acquired in late 1999. As such, the asset value was consistent for the majority of the study period. Comparatively few points were obtained at the higher asset value, making the results unreliable. In fact, the trend line for Cenprop shows the value at risk decreasing as the asset value increases, which is highly unlikely.

The asset value of the Pioneer fund actually decreased over the study period, with no new properties acquired, and specific properties losing value. It is thus difficult to assess the increase in value at risk as the assets value increased, as this value did not in fact increase. Pioneer is the only Focused fund with a relatively shallow slope.

Cenprop was then excluded from the group of diversified funds, while Pioneer was excluded from the focused funds. The R-Squared values for these groups increased when these 2 funds were excluded, as is seen in table 6.2.1. Scatter plots were developed for each grouping with these funds excluded. These scatter plots are to found in appendices 3 and 4. The slope derived for the diversified funds without Cenprop is remarkably similar to that for the group when Cenprop is included. The same holds true for the exclusion of Pioneer from the Focused Group. This would seem to indicate the robustness of the results.

Figure 6.2.1 represents the scatter graph reflecting the value at risk / asset value relationship for all funds in the sector over the last five years. The derived trend line indicates that the average increase in asset value for the PUT sector results in an increment in value at risk of 0.1223 times that increase in asset value.

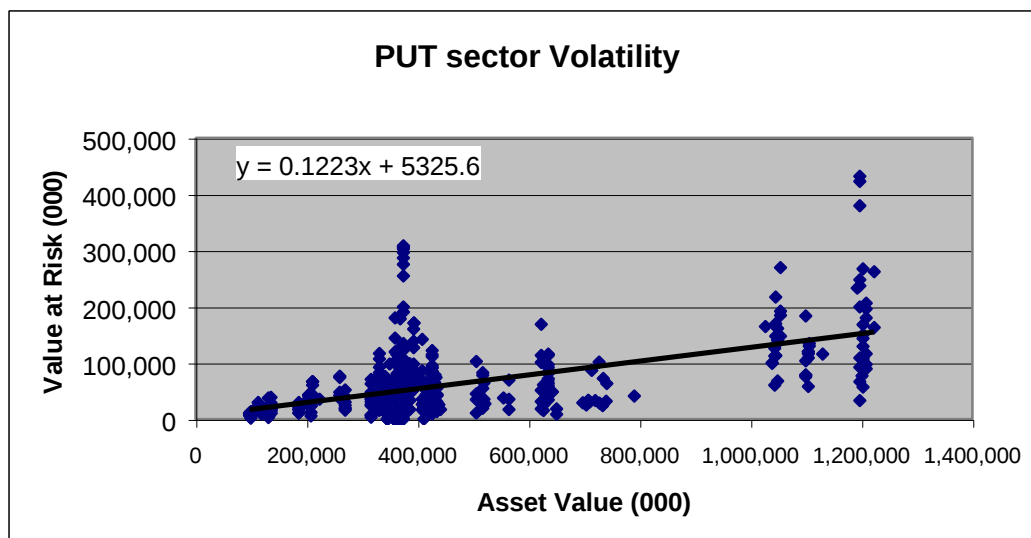


Figure 6.2.1
PUT Sector Volatility

The trend line for this graph was statistically evaluated to assess if it provides a relevant description of the scatter plot. The slope, the intercept and the model as a whole were assessed. The intercept is not statistically relevant, but the slope and the model as a whole are relevant. The 't' test for regression prescribes that if the probability value obtained is smaller than 0.05, the hypothesis that the slope does *not* describe the relationship between the variables can be *rejected*. The coefficient value for the slope obtained a probability value of 0.000000 here, confirming that the slope is described by the equation. Similarly, the model obtained an F value of 0.000000, confirming that the model is statistically relevant.

The points were found not to be normally distributed around the model, usually a condition for a regression model. This lack of normality is explained by the fact that value at risk cannot be negative, and so the points are constrained above the 'x' axis. This explanation and the fact that the probability values reflected in both the 't' and the 'F' tests are so low, allow us to reject the hypothesis that the models are not statistically relevant. A summary of the statistical reports for this and the following graphs are included in appendix 5.

Figure 6.2.2 reflects the same relationship as that shown in figure 6.2.1, but this time only for the diversified funds. Here the increase in value at risk is 0.1112 times the incremental asset value, lower than the figure for the entire sector.

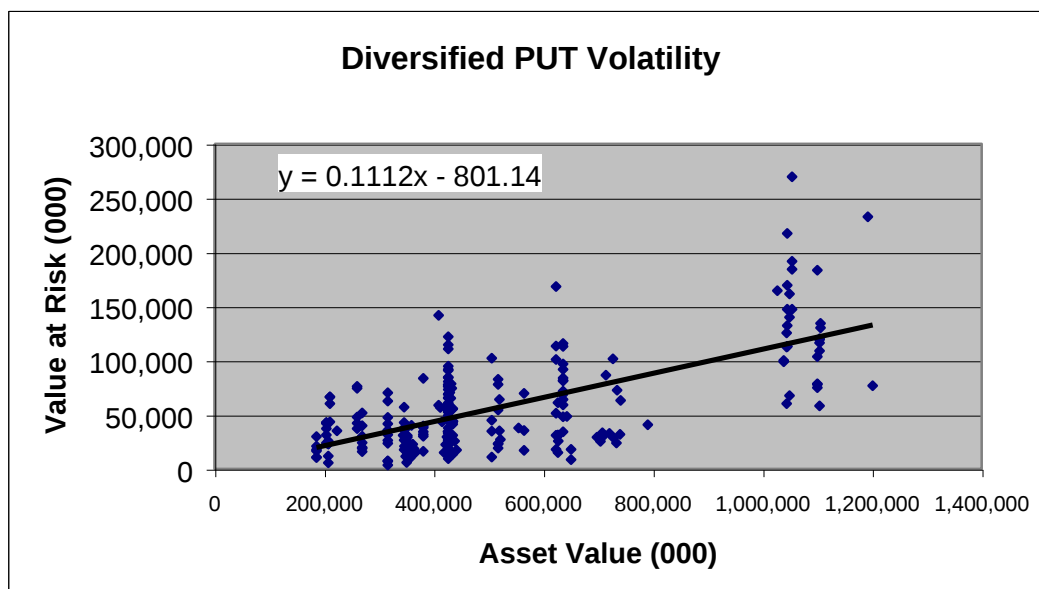


Figure 6.2.2
Diversified PUT volatility

Once again, the slope of the trend line as well as the model, were found to statistically adequately describe the scatter plot, while the intercept was found not to be significant. (See appendix 5)

Figure 6.2.3 shows the relationship derived from the focused PUT's. Here the effect of an increase in asset value is greater than both the figure for the sector, and that for diversified funds, at a factor of 0.1427.

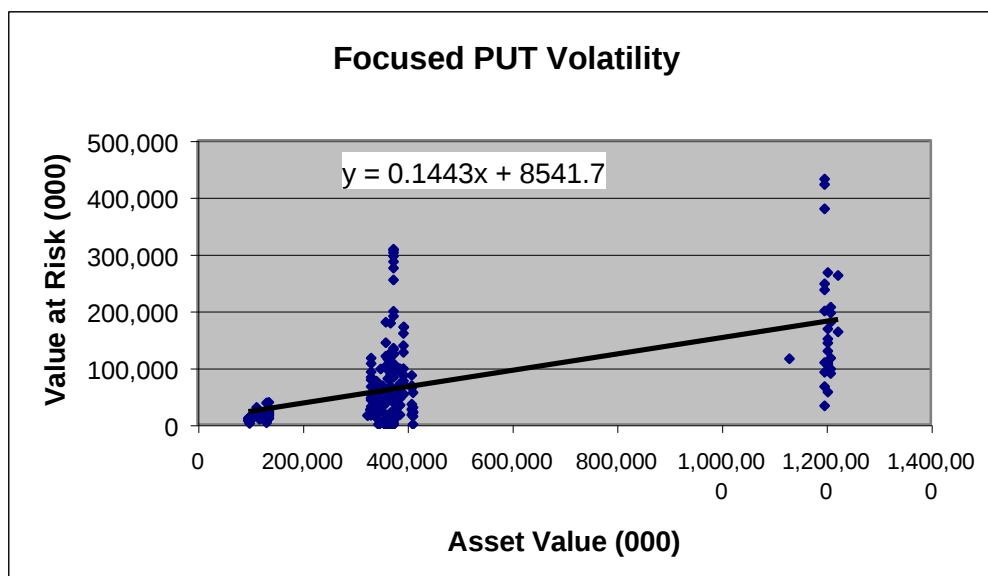


Figure 6.2.3
Focused PUT volatility

Here also, the slope of the trend line returned a 't' value of 0.000000. The slope thus adequately describes the relationship points within the scatter plot. The model reflected an 'F' value of 0.000000, passing the 0.05 test required for relevance. Here again the intercept is not statistically relevant, although in this case it is only marginally so.

In this report, the slope has been used to compare the different funds, as well as focused and diversified groupings. The intercept has not been used at all.

Figure 6.2.4 illustrates the 3 relationships described above by plotting the additional value at risk for each additional R10 million in asset value for each grouping. This figure illustrates the differences in the factors derived for diversified and focused funds. The statistical relevance of these differences is addressed in section 7.1.

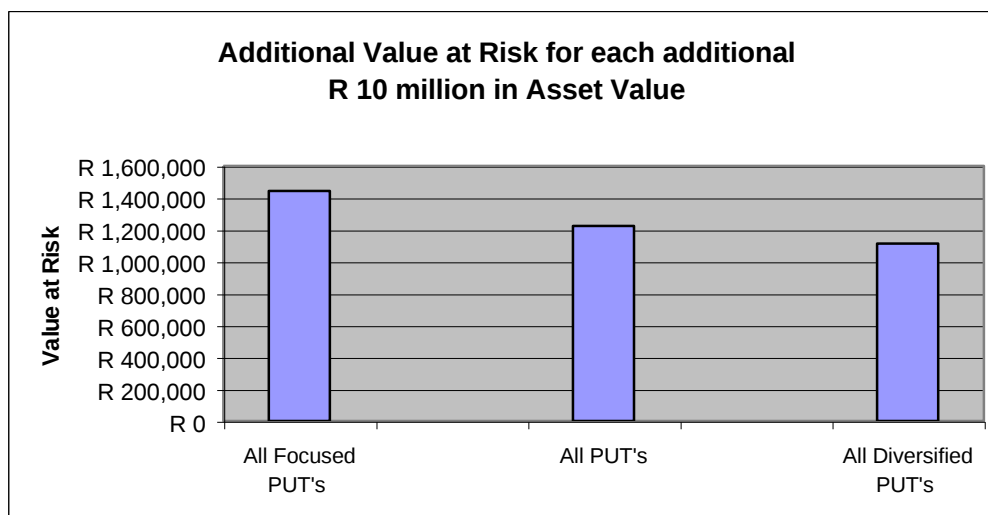


Figure 6.2.4
Additional value at risk for each R10 million in asset value – grouped funds.

6.2.2 Individual Funds

The relationship between asset value and value at risk was plotted for each individual fund. Once again, different trend lines were explored for each plot, to establish which described the relationship most accurately. R-Squared values were established for each method, and these are reflected in table 6.2.2 below.

	Linear	Logarithmic	Polynomial	Exponential
Capital	0.0016	0.0019	0.0697	N/A
CBD Fund	0.0303	0.0461	0.3201	0.0265
Cenprop	0.0247	0.0247	0.0251	0.0264
Grayprop	0.3499	0.3576	0.3746	0.3902
Martprop	0.5420	0.5406	0.5424	N/A
Pioneer	0.0011	0.0012	0.0042	0.0007
Prima	0.2177	0.2204	0.2254	0.2308
Sycom	0.0446	0.0546	0.1071	0.0908

Table 6.2.2
R-Squared Values – each fund

The percentage of the relationship described across the funds by linear and logarithmic equations is similar, while that described by a polynomial line shows some improvement. Once again, the linear equation was selected for analysis as it enables easy comparison across the funds, and the polynomial equation does not describe much more of the relationship.

There is however a large variation in the amount of the relationship described across the funds. The linear equation describes less than 0.2% of the relationship for the Capital and Pioneer Funds, while it describes almost 35% of the relationship for Grayprop, and over 54% for Martprop. Grayprop and Martprop are the largest funds. As such, the graphs cover a larger range of asset value, allowing for risk values to be spread over this range more easily than occurred in most other funds. The percentage relationship described for the 2 outliers, Cenprop and Pioneer, are particularly small.

On the whole, however, the descriptions are not as statistically relevant as those described for the grouped funds as depicted in table 6.2.1 above. This may be because there are less data points in each fund than in the consolidated groups. As such, the relationships between asset value and value at risk for each fund as described in table 6.2.3 below are only indicative. The scatter plots for each fund are to be found in appendix 2.

FUND	Coefficient	Focused / Diversified
Capital	0.2552	Focused
CBD Fund	0.0588	Diversified
Cenprop	-0.1217	Diversified
Grayprop	0.1425	Diversified
Martprop	0.1861	Focused
Pioneer	0.0321	Focused
Prima	0.2490	Focused
Sycom	0.0377	Diversified

Table 6.2.3
Coefficient by which ‘value at risk’ increases as asset value increases – each fund

Figure 6.25 below reflects the factor by which the value at risk for each fund has increased as the asset value increased. The additional value at risk is plotted assuming an increment of R10 million in asset value. The focused PUT's are shown in blue, while the diversified ones are coloured red.

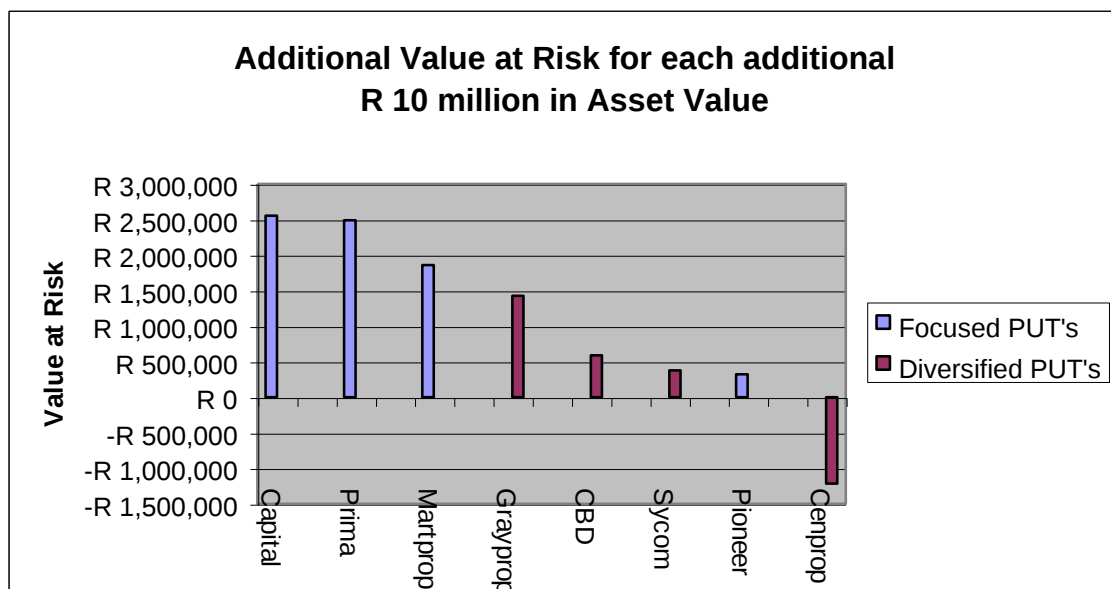


Figure 6.2.5
Additional value at risk for each R10 million in asset value – individual funds.

If Cenprop and Pioneer are ignored, the 3 focused funds all show a higher gradient than the diversified ones reflect. As such, value at risk appears to increase at a greater rate in a focused fund than a diversified one, as the asset value of the fund increases.

7. Interpretation of Results

7.1 Focused PUT's vs. Diversified ones

The most striking observation is that the trend-line derived for the grouped focused stocks is steeper than that for the grouped diversified stocks, as reflected in figure 6.2.4 above. The gradient for the line generated by plotting the value at risk against the asset value for all focused stocks is 0.1443. This implies that for every R10 million of asset value added to the portfolio, the value at risk increases by R 1.443 million.

The gradient for all of the diversified stocks, on the other hand, is 0.1112, indicating that for every additional R10 million of assets added, the value at risk increases by R 1.112 million. To test the statistical significance of the difference in these 2 gradients, each model was tested for a 95% certainty level. This test established the upper and lower ranges of the gradient co-efficient to ensure a 95% probability that the model would describe the relationship between asset value and value at risk. The lower and upper values for the groups of focused and diversified funds, as well as the coefficient value are reflected in table 7.1.1 below.

	Lower confidence limit	Coefficient Value	Upper confidence limit
Focused Funds	0.11752	0.14425	0.17098
Diversified Funds	0.09538	0.11123	0.12708

Table 7.1.1
95% probability coefficients – Grouped Funds

The ranges required to produce a certainty of 95% overlap each other. The lower confidence limit for the focused group is 0.11752, while the upper confidence limit for the diversified group is 0.12708. Although this overlap is relatively small, as illustrated in figure 7.1.1, this overlap makes it impossible to state with statistical certainty that the difference between the gradients is significant.

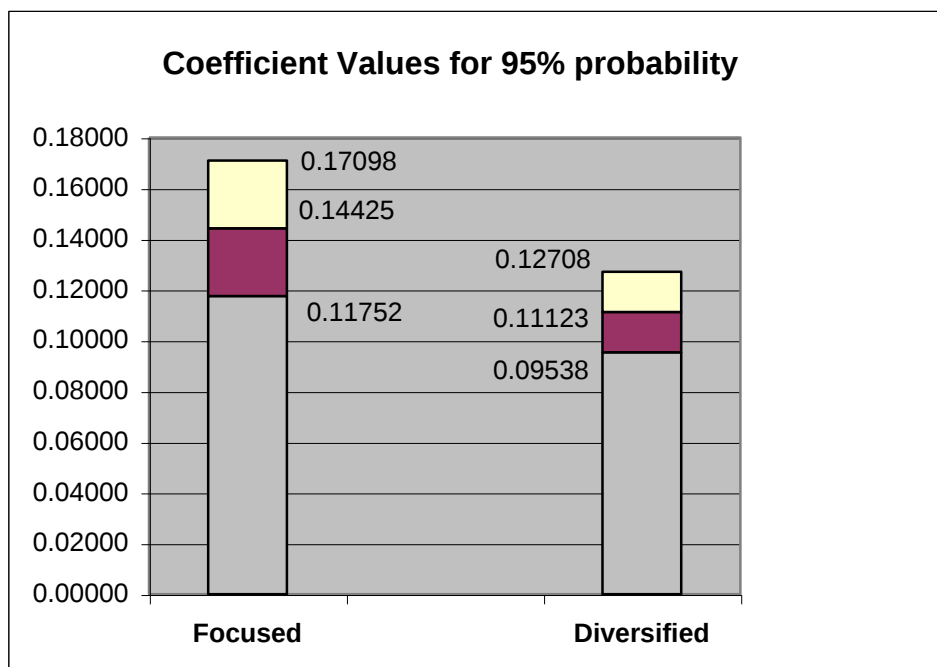


Figure 7.1.1
Range of coefficient values for 95% prediction probability

This finding indicates that the theoretical view that diversified assets should provide for less volatility than focussed ones is probably true, but cannot be verified with statistical certainty.

As may be expected, the coefficient for the group including all stocks in the sector, both diversified and focused, is found to be between these 2 values, at 0.1223.

7.2 Individual PUT's

The difference between the gradients of the grouped funds discussed above seems small when compared to the vast range of coefficients reflected by the different individual PUT's. Pioneer and Sycom record gradients of less than 4% (0.0321 and 0.0377 respectively), while Capital and Prima reflect gradients of approximately 25%.

The coefficients derived for each of the individual funds, as reflected in figure 6.2.5 do seem to indicate that focused funds have greater volatility than diversified ones. The 3 focused funds (excluding the outlier Pioneer) have gradient coefficients that are higher than those of the 3 diversified funds. The gradients for the focused funds range from 0.1861 to 0.2552, while those for the diversified funds range from 0.0377 to 0.1425. In fact, the focused funds all have gradients steeper than that of the PUT sector as a whole.

Within the group of individual diversified stocks, Cenprop has been disregarded as an outlier. Of the balance, 2 reflect gradients vastly less than the index, while one, Grayprop, is slightly higher at 0.1425. Grayprop has doubled its asset value in the last 3 years, and this incremental growth may have been too quick to allow for the market to recognize the benefits of diversification.

Although the results for the individual unit trusts appear to confirm that diversified portfolios are less volatile, these results are not statistically significant. As we have seen in section 6.2.2 above, the models derived to describe the relationship between asset value and value at risk for the individual PUT's did not describe a high

percentage of the relationship. As such, the research cannot result in any statistically relevant conclusions, and remain an illustration of a relationship that may exist.

7.3 Other comparisons.

There are 2 funds in the sector that have comparable asset values, and share the same management. It was interesting then to compare their volatility. The Capital Property Fund is a focussed industrial fund, while Cenprop is a diversified fund. Both are managed by JHI.

The focused fund posted the highest gradient in the sector at 0.2552, while Cenprop reflected a negative slope, as discussed above. Even if the Cenprop value is an anomaly, the difference in gradient coefficient between these two funds is striking. The fact that the diversified fund effects far greater risk sharing characteristics confirms the findings discussed above.

7.4 Size

It is interesting to note that the 2 stocks that have an asset value of over R 1 billion produced gradients close to the index. The 2 largest stocks, Grayprop and Martprop, the former diversified with the latter being focused, reflected slopes just higher than the index at 0.1425 and 0.1861 respectively. This would seem to indicate that the larger the fund, the closer results are to the index.

The smallest funds, (ignoring Pioneer) Prima, Capital and the CBD fund all posted relatively high coefficients, with Capital and Prima showing the steepest gradients in

the sector at 0.2552 and 0.2490 respectively. This would seem to indicate that a fund has to be of a certain minimum size to benefit from the diversification of risk. This too confirms the theoretical view that the larger the number of buildings making up the fund, the larger the potential for diversification.

Of all the PUT's there is only one of intermediate asset value, at just under R 800 million. Sycom has grown steadily over the last few years, and reflected the lowest gradient of 0.377.

7.5 Other observations

It is also interesting that Grayprop, a fund that was diversified, but is becoming more and more focused on Retail properties, is the fund that has the steepest gradient of all the diversified funds at 0.1425. This again would seem to indicate that diversified funds are less volatile.

8. Conclusions

We have seen that Property Unit Trusts do have risk sharing capabilities. This is demonstrated by the relatively flat trend line obtained when plotting value at risk as a function of asset value. The index for the entire sector indicates that on average, for each increment in asset value, the increase in value at risk increases by only 12% of the additional asset value.

We have no benchmark to test this gradient against, but to illustrate this point, we can assume that the PUT's with the highest gradient, Capital and Prima, reflect no risk sharing attributes. Their value at risk rises by approximately 25% of the asset value added. Compared with this index, most PUT's reflect substantial risk sharing attributes. The index for the sector then has diversified about half the additional risk. Sycom, the PUT with the flattest gradient at just under 4%, has then diversified all but about 15% of the additional risk.

We have also indicated the likelihood that diversified PUT's have greater diversification potential than focused funds do, although the tests were not statistically conclusive. This finding was demonstrated by comparing an index of all diversified funds with an index on focused ones. The index of diversified funds showed a gradient that was lower than the index for focused funds.

The fact that this result was indicated, but could not be statistically verified, may be a reflection on the sophistication of the market. Boonzaaier (Feb 2001) has commented

that in his view investors in Property Unit Trusts are not yet sophisticated enough to compare the diversification benefits of specific funds.

The individual funds also indicate that diversified funds offer better risk sharing properties, although this too could not be statistically verified. The majority of funds that returned a gradient higher than that of the index were focused companies. Most of the individual diversified funds reflected gradients that were flatter than those derived for the focused funds.

It would then be wise for asset managers building up property funds to consider the diversification benefits of the acquisition strategy employed. This strategy certainly provides the possibility of risk sharing, but attention must be paid to specific diversification characteristics, such as location and sector.

Diversification does not guarantee a superior investment, however, and the reliability of the potential income stream is crucial to the decision to purchase a building, and include this in a property portfolio.

This report has investigated the relationship between diversification and volatility. It has not researched the performance of each of these funds in terms of growth or dividend yield. While volatility is crucial to the investor in assessing the risk/reward relationship of a listed stock, it may be important for a further study to investigate if diversified funds provide better yields than focused ones do.

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