

Direct Operating and Portfolio Management Expenses: A Case Study of Self Storage Facilities in South Africa within a Global Context



by

Adriaan N van der Linde

A minor dissertation presented to the Department of Construction Economics and Management of the University of Cape Town in partial fulfilment of the requirements for the degree MSc in Property Studies

Student number: VLNADR001

Supervisor: Kathleen Evans

March 2017

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

Declaration

- 1 I know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own.
- 2 I have used the 'UCTCEM' convention for citation and referencing.
Each contribution to, and quotation in, this minor dissertation from the work(s) of other people has been attributed, and has been cited and referenced.
- 3 This minor dissertation is my own work.
- 4 I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.
- 5 I acknowledge that copying someone else's minor dissertation, or part of it, is wrong, and declare that this is my own work.
- 6 I know the meaning of plagiarism and declare that all the work in the document, save for that which is properly acknowledged, is my own. This thesis/dissertation has been submitted to the Turnitin module (or equivalent similarity and originality checking software) and I confirm that my supervisor has seen my report and any concerns revealed by such have been resolved with my supervisor.

Signature _____

Signed by candidate

Adriaan van der Linde

Date: 10 March 2017.

Abstract

Self storage has become a globally recognised and specialised property investment. Valuation guidelines and annual Industry surveys are available for mature self storage markets worldwide, but currently there is no published South African guideline for self storage expense ratios in terms of total expenses, direct facility operating expenses and portfolio management expenses. These expenses, which are necessary for valuation, are difficult to obtain in the market compared to rental rates, which are publicly advertised to potential tenants.

A case study approach was shown to be the applicable research methodology. It was then explained that the methodology consisted of four stages: The first stage describes the method of data collection from the valuation literature and international annual industry surveys. The second stage describes the method of data collection from the international self storage industry by analysing financial statements of international publicly listed self storage portfolios. The third stage describes the method of data collection from South African self storage portfolio case studies. The fourth stage describes how the data is to be analysed to arrive at an expense ratio guideline for South African self storage portfolios.

The methodology was then carried out to answer the four research questions. On the first research question, it was shown that the South African expense guideline should be as per the table below:

Expense Ratio Guideline for Self Storage Portfolios in South Africa

| Total Expense Ratio (as % of EGI) (consolidated) | | | Direct Operating Expense Ratio (as % of EGI) (same store) | | | Portfolio Management Expense Ratio (as % of EGI) (consolidated) | | |
|--|------------|------|---|------------|------|---|------------|------|
| Low | Average | High | Low | Average | High | Low | Average | High |
| 37% | 43% | 52% | 23% | 29% | 34% | 10% | 13% | 16% |

The second research question was answered by showing that the expense ratios of the South African self storage portfolio case studies were in line with the smaller international self storage portfolios.

The third research question was answered by indicating a lack of standard definitions for self storage expense ratios and therefore proposing a standard definition for Direct Operating and Portfolio Management Expense Ratios.

The final research question was answered by showing that some economies of scale are available in self storage expense ratios. Future research can be conducted to confirm if the grade of a self storage facility is a more important factor for competitiveness than the size of the portfolio a facility forms part of.

Acknowledgements

I thank my wife, without your support I would not have had the time to complete this research.

I would like to thank my study leader who provided excellent guidance throughout the research process.

Thank you to the research participants that made this research possible.

Contents

| | Page |
|---|-----------|
| CHAPTER 1 INTRODUCTION | 1 |
| 1.1 Background to the research | 2 |
| 1.1.1 <i>Self storage in the US</i> | 2 |
| 1.1.2 <i>Self storage in the UK</i> | 3 |
| 1.1.3 <i>Self storage in Australasia</i> | 4 |
| 1.1.4 <i>Self storage in South Africa</i> | 4 |
| 1.2 Justification for the research | 5 |
| 1.3 Problem statement | 6 |
| 1.4 Research questions | 6 |
| 1.5 Research aim | 7 |
| 1.6 Research propositions | 7 |
| 1.7 Research objectives | 7 |
| 1.8 Methodology | 7 |
| 1.9 Limitations | 8 |
| 1.10 Structure of the research report | 8 |
| 1.11 Conclusion | 9 |
| CHAPTER 2 LITERATURE REVIEW | 10 |
| 2.1 Introduction | 10 |
| 2.2 Background and history: valuation of self storage | 10 |
| 2.3 Self storage expense guideline literature review | 14 |
| 2.4 Background to valuation guidelines and annual industry surveys | 28 |
| 2.5 Portfolio management expenses and valuation | 30 |
| 2.6 Limitations of scope and key assumptions | 34 |
| 2.7 Conclusion | 36 |
| CHAPTER 3 METHODOLOGY AND DATA COLLECTION | 37 |
| 3.1 Introduction | 37 |
| 3.2 Case study as methodology | 37 |
| 3.2.1 <i>Research approaches</i> | 37 |
| 3.2.2 <i>Research strategy</i> | 38 |
| 3.2.3 <i>Justification of the research strategy</i> | 39 |
| 3.2.4 <i>Research design</i> | 41 |
| 3.3 Justification for the sources of data | 43 |
| 3.3.1 <i>International listed self storage portfolios</i> | 43 |
| 3.3.2 <i>South African case studies</i> | 44 |
| 3.3.3 <i>Semi-structured interviews</i> | 44 |
| 3.4 Justification for the method of analysing the data | 45 |
| 3.4.1 <i>Justification of the analysis methodology</i> | 45 |
| 3.4.2 <i>Justification for selected expense category definitions</i> | 46 |

| | | |
|---|--|-----------|
| 3.5 | Methodology limitations | 49 |
| 3.6 | Ethical considerations | 49 |
| 3.7 | Conclusion | 50 |
| CHAPTER 4 DATA COLLECTION AND ANALYSIS | | 51 |
| 4.1 | Introduction | 51 |
| 4.2 | Description of data subjects | 51 |
| | 4.2.1 <i>International listed self storage REITs</i> | 51 |
| | 4.2.2 <i>Case Studies: South African self storage portfolios</i> | 52 |
| 4.3 | Data collection | 53 |
| | 4.3.1 <i>Methodology Stage 2: procedures followed for the listed portfolio analysis</i> | 53 |
| | 4.3.2 <i>Methodology Stage 3: Procedures followed for the case studies of South African self storage portfolios</i> | 55 |
| 4.4 | Data analysis for patterns in the data in terms of the research questions | 56 |
| | 4.4.1 <i>Stage 1: Data analysis – guideline literature review summary</i> | 56 |
| | 4.4.2 <i>Stage 2: Data analysis – international listed self storage REIT financial statements analysis</i> | 58 |
| | 4.4.3 <i>Stage 3: Data analysis – case studies of South African self storage portfolios in a global context</i> | 60 |
| | 4.4.4 <i>Stage 4: Patterns in the data – expense ratios relative to the number of facilities in a portfolio</i> | 62 |
| | 4.4.5 <i>The most reliable expense ratio</i> | 69 |
| 4.5 | Semi-structured interviews about the research findings | 70 |
| 4.6 | Conclusion | 71 |
| CHAPTER 5 CONCLUSIONS AND IMPLICATIONS | | 72 |
| 5.1 | Introduction | 72 |
| 5.2 | Conclusions regarding each research question | 73 |
| | 5.2.1 <i>Research question (a): What should the South African self storage expense guideline be for portfolio investments?</i> | 74 |
| | 5.2.2 <i>Research question (b): How do the established South African expense guidelines compare to international benchmarks?</i> | 77 |
| | 5.2.3 <i>Research question (c): How should expenses be classified – as Direct Operating Expenses or Portfolio Management Expenses – to enable market comparison?</i> | 79 |
| | 5.2.4 <i>Research question (d): How would economies of scale affect self storage expense ratios?</i> | 80 |
| 5.3 | Research proposition achievement | 81 |
| 5.4 | Research objective attainment | 81 |
| 5.5 | Contributions to the research problem | 82 |
| 5.6 | Implications for theory and practice | 82 |
| 5.7 | Implications for further research | 83 |

List of Tables

| | Page |
|--|------|
| Table 1: Self storage facility grading system..... | 12 |
| Table 2: Adjustment to industrial capitalisation rate to obtain self storage facility capitalisation rate..... | 12 |
| Table 3: Total Expense Ratio – summary of literature recommendations | 17 |
| Table 4: Direct Operating Expense Ratio – summary of literature recommendations | 19 |
| Table 5: Portfolio Management Expense Ratio – summary of literature recommendations... | 21 |
| Table 6: Advertising total – summary of literature recommendations..... | 23 |
| Table 7: On-site management expenses – summary of literature recommendations | 24 |
| Table 8: Property and liability insurance – summary of literature recommendations | 24 |
| Table 9: Real estate taxes – summary of literature recommendations..... | 25 |
| Table 10: Repairs, maintenance and cleaning – summary of literature recommendations.... | 25 |
| Table 11: Utilities – Summary of literature recommendations | 26 |
| Table 12: Relevant conditions for different research strategies (Source: Yin (1994))..... | 38 |
| Table 13: Guideline literature and industry survey summary table..... | 57 |
| Table 14: Guideline literature and industry survey summary table (continued) | 58 |
| Table 15: International listed self storage portfolios summary table..... | 59 |
| Table 16: International listed self storage portfolios summary table (continued) | 60 |
| Table 17: South African case studies summary table | 60 |
| Table 18: South African case studies summary table (continued)..... | 61 |
| Table 19: Condensed expense ratio summary table..... | 63 |
| Table 20: Comprehensive expense ratio summary table | 64 |
| Table 21: Expense ratios relative to number of facilities in the portfolio | 74 |
| Table 22: Expense ratio guideline for self storage portfolios in South Africa | 77 |
| Table 23: Condensed expense ratio summary table..... | 78 |
| Table 24: Comparison of smaller international portfolios to the South African case studies.. | 79 |
| Table 25: Expense ratios relative to portfolio size..... | 80 |

List of Figures

| | Page |
|--|------|
| Figure 1: US commercial property capitalisation rate trends..... | 13 |
| Figure 2: 3Q 2016 – Market segmentation by investment quality | 13 |
| Figure 3: Australasian Total Expense Ratios over time | 16 |
| Figure 4: Rent per available storage area | 32 |
| Figure 5: Total new self storage construction | 33 |
| Figure 6: Net units rented per facility per month | 33 |
| Figure 7: Total Expense Ratio vs number of facilities under management (linear scale) ... | 65 |
| Figure 8: Total Expense Ratio vs number of facilities under management (log scale) | 66 |
| Figure 9: Direct Operating Expense Ratio vs number of Same Store facilities (linear scale) 67 | |
| Figure 10: Direct Operating Expense Ratio vs number of same store facilities (log scale) .. | 67 |
| Figure 11: Portfolio Management Expense Ratio vs number of facilities under management (linear scale) | 68 |
| Figure 12: Portfolio Management Expense Ratio vs number of facilities under management (log scale) | 69 |

Abbreviations

| | |
|---------|---|
| DCF | discounted cash flow |
| EGI | effective gross income |
| IFRS | International Financial Reporting Standards |
| IPD | International Property Databank |
| REIT | Real Estate Investment Trust |
| UK | United Kingdom |
| US | United States of America |
| US GAAP | US Generally Accepted Accounting Principles |

Chapter 1 Introduction

Self storage can be defined as a property type that offers rental of individual mini storage units on a month-to-month basis to members of the public. Customers apply their own locks and have sole access to their storage units. The landlord is not liable to take care, custody or control of a customer's goods.

Self storage buildings or self storage facilities, as they are often referred to, exist as linear buildings, converted warehouses or multi-storey buildings. Linear buildings typically consist of rows of storage units arranged next to each other as single storey buildings, accessed via large roll-up doors with direct drive up access to the self storage units. Some facilities also offer storage for boats and vehicles. The other form of self storage buildings is multi-storey buildings, or warehouses that have been converted into multi-storey self storage facilities. The number of floors in a multi-storey building ranges from two floors, i.e. a double storey, up to 10 floors or more. These buildings provide access to the self storage units through interior hallways and elevators. In harsh climate environments, some facilities offer climate controlled units. Trolleys and furniture carts are usually provided which customers can use to move their goods into their storage unit (Self Storage Association, 2010).

Self storage has become a globally recognised and specialised property investment, which is demonstrated by the market capitalisation of self storage Real Estate Investment Trusts (REITs) ranking among the largest REITs in the world. Many countries such as the United States of America (US), the United Kingdom (UK), Western Europe and Australasia already have mature self storage markets (Blackwell, 2009b; Sonne, 2012).

Valuation guidelines and annual industry surveys are available for these mature self storage markets. Such publications are compiled annually to aid current and potential investors, financiers, developers, operators and valuers to evaluate a self storage facility or portfolio of such facilities. These publications provide expense ratio benchmarks that are critical inputs to value a self storage facility or portfolio. It furthermore enable readers to assess whether a facility or portfolio is effectively managed, whether management has sufficient resources to manage properly and whether they are over or under expending in the various expense categories relative to the market (Correl, 2003; Sonne, 2012; Self Storage Almanac, 2014; Self Storage Association and Deloitte Real Estate, 2014; MiniCo, 2015; Sonne, 2016).

Factors, such as the number of self storage facilities in South Africa, indicate that the South African self storage market is reaching maturity (Storage RSA, 2016), although no annual Industry surveys have been collated or published to date for the South African Market.

1.1 Background to the research

A background to the global self storage industry is outlined below, followed by a background to the South African self storage industry.

1.1.1 Self storage in the US

Self storage originated in the US after World War II during the early 1950s. It was a useful interim property use when land had been acquired and needed to be 'banked'. Self storage was therefore a temporary use of the property, until such time as the town had developed sufficiently around and beyond the property, and a higher and best use such as offices or retail had become viable (Sonne, 2012).

The first purpose-built self storage facility, considered to be the highest and best use of the specific portion of land, was erected in Corpus Christi, Texas in the 1960s. Over the last 60 years, the self storage property market has grown into a recognised specialised property investment, with some of the largest listed REITs in the US being specialised and focused, self storage property REITs (Sonne, 2012).

The US self storage market is the largest globally with 52,000 facilities in the US in 2014, of which over 80% are privately owned (Self Storage Almanac, 2014). Public Storage, founded in 1972, is the largest self storage REIT in the US (Sonne, 2012). It was listed as the second largest REIT among all property REITs on the MSCI US REIT Index in 2015 in terms of market capitalisation, with a market capitalisation of 35.3 billion USD (MSCI, 2015). The five largest self storage operators in the US manage approximately 11.5% of all facilities (UK Self Storage Association, 2015). This relatively small percentage of ownership by the five largest self storage REITs indicates that the US self storage market is fragmented.

A fragmented industry in this context means an industry where the market consists of many market participants in competition with each other. It is also defined as a market where no single company has sufficient influence to move the industry in any particular direction (Business Dictionary, 2016).

Self storage has proven to be a resilient property investment during economic downturns relative to other property types. US self storage companies produced the highest risk-adjusted return among 10 real estate investment trust indices between 2002 and 2012, with an annual risk-adjusted gain of 10.6%. They also produced the highest total return and the third lowest volatility (Yu, 2012). The ability of self storage operators to adjust rental amounts on a monthly basis is partly why the self storage industry proved so resilient during the recession and it has

led financiers to view the lack of a conventional five-year lease in self storage as a benefit, contrary to previous perceptions (Sonne, 2012).

US self storage companies have not only proven resilient, but they have also produced the highest total annual returns over 5-, 10- and 15-year averages among the five main property type REITs, according to an analysis of data from the National Association of Real Estate Investment Trusts, out of the office, industrial, retail, apartment and self storage property sectors. In this analysis, the standard deviation of average returns was also the lowest over 5-, 10- and 15-year averages (Sonne, 2012). This indicates that self storage investments have a high income and stable nature.

As a result of the resilience of self storage facilities and the continued strong return performance, capitalisation rates have compressed from the historic 10% when self storage was in its infancy to a current 4.5% in the US for prime self storage portfolios. (Marcus and Millichap, 2016; MJ Partners Self Storage Group, 2016)

Guidelines, valuation literature and annual industry surveys are available in the US to provide guidance on Direct Operating Expense Ratios and portfolio management expenses. This includes valuation guidelines by the Appraisal Institute, such as *Self Storage Economics and Appraisal* by Christian Sonne, and *Market Analysis and Valuation of Self Storage Facilities* by Richard Correl. Annual industry surveys include the *Self Storage Expense Guidebook* and the *Self Storage Almanac*.

1.1.2 Self storage in the UK

The UK is currently the largest self storage market in Europe measured by rentable floor area, at 3.3 million square metres, followed by France with 0.9 million, the Netherlands at 0.8 million and Spain with 0.4 million square metres of rentable self storage floor area. In total, Europe has approximately 2,440 facilities and 7.2 million square metres of rentable floor area (UK Self Storage Association, 2015).

In the UK, there were approximately 1,022 self storage facilities in 2015. Approximately 35% of self storage facilities are owned by large operators in the UK – operators with more than 10 facilities – and 29.5% of all UK facilities are operated by the five largest operators (UK Self Storage Association, 2015). It is clear from these numbers that the UK self storage market is also fragmented.

A limited number of industry publications and surveys are available to provide a guideline for UK facility operating expense ratios and portfolio management expenses. These include

surveys like the annual *UK Self Storage Association Survey* and the *Federation of European Self Storage Associations European Annual Survey*.

1.1.3 Self storage in Australasia

After observing the success of the business model in the US, Jim Miller and Neville Kennard started self storage in Australia in the 1980s. Rapid expansion followed in the 1990s with another four large brands being established. Consolidation followed between 2004 and 2008. (Blackwell, 2009b)

In 2009, Australia had approximately 1,200 facilities, 427 of which were situated in major cities – representing 1.47 million square metres of rentable floor area in major cities. Kennards Self Storage operated more than 50% of the self storage facilities in Sydney in 2009 (Blackwell, 2009b; UK Self Storage Association, 2015). Approximately 75% of facilities are still owned by small independent operators (National Storage REIT, 2015).

A limited number of industry publications and surveys are available to establish a guideline for Australasian facility operating expense ratios and portfolio management expenses; for example, the *Annual Australasian Self Storage Almanac* (2012).

1.1.4 Self storage in South Africa

The South African Self Storage Industry has been in existence since the early 1990s when the success of the concept was observed in the US; some of the first modern facilities were constructed in the late 1990s. In 2016, there were approximately 350 self storage facilities across South Africa (Storage RSA, 2016).

Since 2011, four large operators have emerged. The professionalisation of the industry and the formation of self storage portfolios has attracted the attention of listed funds and institutional investors (Rode, 2011). The market share in terms of lettable area of these four big players comprises approximately 32% of the total market, which makes it more consolidated in comparison to the fragmented nature of the self storage markets observed globally (Storage RSA, 2016).

The first self storage REIT, the Stor-Age Property REIT, was listed on the Johannesburg Stock Exchange (JSE) in November 2015. It listed with 24 facilities and a total rentable area of 181,500 square metres (Stor-Age, 2015).

No industry publications and surveys are currently available to establish a guideline for South African self storage facility operating expense ratios and portfolio management expenses. There are however privately funded research reports available, but they are restricted to the

entities that funded the research. There is also unpublished research performed by operators themselves.

1.2 Justification for the research

As shown above, self storage has become a globally recognised specialised property investment that has attracted the attention of large private investors, listed funds and institutional investors in markets where investment grade portfolios have been created.

It is important to research information on what expense ratios should be because this data is not as readily available as income data. The net income is required when a self storage facility is valued – effectively revenue less expenses.

Revenue information in self storage is often publicly available or it can be obtained by a simple enquiry at the desired self storage facilities. Self storage facilities supply prospective customers with quotes on a daily basis and, unlike other types of property in which rentals are negotiated and reviewed only annually and in private contracts, self storage rental prices can vary from month to month for new applicants depending on the demand for self storage and the degree of vacancy at the various self storage facilities.

By contrast, when it comes to expense information in self storage, operators are hesitant to provide it: it is clear that the enquirer is not a customer when asking for such information, and the operator would therefore be unsure whether such private information should be disclosed and whether competitors would be able to use it against the operator should they obtain it.

An expense guideline that collects and presents data in a manner the data subjects are comfortable with provides valuable information, thereby enabling and facilitating much needed data for valuation and investment. Such an expense guideline would aid current and potential investors, lenders, valuers, developers and operators in various ways:

- It would assist in determining whether the portfolio being evaluated is market related in terms of its operating and portfolio management expenses.
- It would provide a view on what expenses should be in a South African context, and what they should be if competition on an international level is considered
- It would indicate whether management is managing the portfolio effectively in comparison with its peers.
- It would help ascertain whether management is receiving sufficient resources (funds made available to expend a certain percentage of revenue) to manage the portfolio properly.

- It would indicate whether management is over- or under expending in the various expense categories.
- It would show where South African portfolios are outperforming international players, and where room for improvement could be found.
- It would enable South African portfolios to compare their performance relative to their local peers.

The need and demand for such a guideline in a sizeable and mature self storage market is clear, especially when considering that various annual expense guidebooks and industry surveys are compiled by specialised private companies in the US, UK and Australasia and sold to market participants.

After comparing the level of maturity of the South African market to global markets in the overview in section 1.1, it is apparent that South Africa is reaching a level of maturity where such a guideline of direct operating expenses and portfolio management expenses would be viable, even critical, for assessing this developing investment opportunity.

This guideline has therefore been compiled to be used for the future development of a South African benchmark of self storage expense ratios – similar to benchmarks currently produced by the MSCI International Property Databank (IPD) for the retail, office and industrial property sectors. It would further be useful for self storage stakeholders if this research could lead to an organisation such as the IPD adding a self storage sector to its benchmarking database.

1.3 Problem statement

Currently, there is no published South African guideline for self storage expense ratios, in addition to which, expense category definitions vary from portfolio to portfolio, making comparison difficult. There is therefore a need to understand how South African expense ratios relate to the global self storage industry. Without such guidelines in the South African market, it is impossible to facilitate proper evaluation of the developing self storage investment opportunity, or identify if and where economies of scale can be found in terms of expense ratios in the self storage property type.

1.4 Research questions

The research questions are therefore as follows:

- (a) What should the South African self storage expense guideline be for portfolio investments?

- (b) How do the established South African expense guidelines compare to international benchmarks?
- (c) How should expenses be classified – as Direct Operating Expenses or Portfolio Management Expenses – to enable market comparison?
- (d) How would economies of scale affect self storage expense ratios?

1.5 Research aim

Investigate and determine internationally comparative expense ratio guidelines for the South African self storage market sector.

1.6 Research propositions

The research propositions are:

- A guideline of South African self storage expense ratios is required to understand and enable efficient investment and evaluation of South African self storage investment returns and opportunities.
- South African expense ratios compare favourably with international benchmarks.
- South African expense ratio categories lack standard definitions.
- Economies of scale exist in expense ratios of self storage portfolios.

1.7 Research objectives

The research objectives are to:

- analyse international expense guidelines considering benchmark publications and the establishment of expense definitions and classifications and their application to the South African market;
- establish and analyse the expense ratios of the large self storage portfolios in South Africa and compare these to international benchmarks;
- analyse the potential for economies of scale existing in South African self storage expense ratios.

1.8 Methodology

The research methodology to determine a guideline for self storage operating expenses and portfolio management expenses in South Africa was carried out by following a case study methodology.

Case study methodology was found to be most applicable, as the research asks the questions 'how' and 'what' with an underlying 'why' motive; there is no control over the behavioural events and the research focusses on contemporary events (Yin, 1994). It will be shown that the methodology could not be a survey, because multiple sources of data were used including qualitative and quantitative data which was combined to draw conclusions through the process of triangulation (Webb, 1966). Furthermore, the population of the study had to be narrowed down to the four professionally managed and comparable self storage portfolios in South Africa. This resulted in a 100% response rate as these four portfolios were specifically targeted to be researched. A 100% response rate is uncommon for surveys (Cook, 2000).

Qualitative data was obtained in the form of textual data of expense ratios and semi-structured interviews with international industry experts. Quantitative data, in the form of expense ratios, was obtained from valuation literature, international annual industry surveys, financial statements of listed international self storage portfolios and from the four South African self storage portfolio case studies. Refer to section 3.2 below for a more extensive discussion of the research methodology.

1.9 Limitations

This study was subject to the following limitations:

- The research was limited to a sample size of four self storage portfolio companies in South Africa; it was restricted due to these being the only large and comparable companies with self storage investment portfolios in the market sector.
- The author of this research is employed by one of the privately owned South African self storage portfolios.

1.10 Structure of the research report

Chapter 1 provides a brief outline of the research topic and then justifies why the research is required and relevant; thereafter, the research problem, questions, aim, proposition and objectives are stated. The research methodology is briefly outlined, followed by the limitations of the research.

Chapter 2 contains the literature review which reviews the existing literature and research on self storage expense ratio guidelines and benchmarks.

Chapter 3 describes and justifies the case study methodology used for this research, the methodology used to analyse the financial statements of the international self storage

portfolios and the methodology of obtaining expense ratio data from South African self storage portfolios.

Chapter 4 carries out the methodology and presents the analysis of the international portfolio financial statements and South African case studies. It then summarises the data, and compares the South African case studies to the international portfolio analysis and expense ratio literature. Thereafter, it presents some analysis with patterns identified in the data.

Chapter 5 concludes the research by presenting answers to the research questions, discussing the extent to which the research proposition has been proved or disproved, and indicating the degree to which the research objectives have been achieved. It follows by summarising contributions to the research problem and presenting the implications of the research for stakeholders in the South African self storage industry. Lastly, limitations of the research are discussed and opportunities for future research are proposed.

1.11 Conclusion

This chapter gave context to the self storage industry. It introduced the research problem of the lack of a self storage expense ratio guidelines in South Africa. The research was then justified by showing why such an expense ratio guideline is necessary. The methodology was briefly described and the research outlined. Chapter 2 follows with a review of the available literature on this subject (Perry, 1995).

Chapter 2 Literature review

2.1 Introduction

Self storage expense guidelines fit into the valuation of self storage facilities discipline, as well as that of benchmarking. Valuation of self storage facilities can be carried out by a range of valuation methodologies, most of which require the net income of the facility to be calculated.

The net income can only be calculated if realistic and market related expenses are deducted from effective gross revenue. As Blackwell (2009b) states, it is important to ensure that the extensive range of self storage related expenses used in valuations is realistic.

A review of self storage valuation literature provides context to the discipline which expense ratios form part of. Thereafter literature on expense ratio guidelines for self storage is reviewed.

Readers unfamiliar with self storage industry terms are referred to the literature review on these terms in section 2.3.

2.2 Background and history: valuation of self storage

Literature on self storage valuation dates back to 1981 when William Fitzgerald, a member of the Appraisal Institute of Valuers (MAI) in the US, wrote an article that was published in *The Appraisal Journal* of 1981 titled, 'The Valuation of a Miniwarehouse', as self storage was known at that time (Fitzgerald, 1981).

Fitzgerald (1981) advised that self storage could be valued using traditional approaches and valuation techniques. He proposed the cost approach as a simple, first indication of value, followed by the direct capitalisation approach. Direct capitalisation of net income was advised as he was of the opinion that no significant fluctuations in income or expenses would require a valuer to discount future cash flows. He presented a case study of a facility that was 98% rented on the day it opened. As a side note, in the income statement of the case study facility, the total expense as percentage of turnover was 31.7%. Furthermore, Fitzgerald (1981) foresaw a growing demand for self storage and predicted that in the future, a miniwarehouse would take the place of an individual's loft, basement or garage (Fitzgerald, 1981).

In 1987, Charles Wilson followed with an article in the *Appraisal Journal* on valuation of self storage facilities. Wilson (1987) states that self storage borders on being a retail business, and therefore prime locations with traffic exposure is key. He also mentions the increase in competition and overbuilding in some US markets, which decreases rental rates and thereby self storage property values. Another observation by Wilson (1987) is the fixed nature of self

storage expenses and that these expenses are present from completion of construction. This is because most expenses are incurred irrespective of the occupancy level of the facility, for example, the on-site manager who is required from day one, property taxes, insurance, most maintenance expenses, office administration and supplies (Wilson, 1987).

Wilson (1987) also proposes the income capitalisation approach to valuation of self storage. He gives an indication that capitalisation rates are generally between 1 to 1.5 basis points above the rates used for industrial business parks and suburban office buildings. The sales comparison approach was also encouraged by Wilson (1987), as more market evidence was available by 1987 following the purchase of facilities by individuals, corporations, pension funds, institutions and foreign investors.

More recent literature agrees with the earlier literature discussed above. Correl (2003) states that the income capitalisation approach is the most relevant for valuing self storage and could be supplemented by the sales comparison method if sufficient market evidence is available. He adds that the cost approach can be used for feasibility analysis.

An important point is made by Correl (2003), that retail sales of storage related supplies, such as boxes, locks packaging material and tapes, may be included in the capitalised income because they exist as a result of the self storage use of the property; truck rental, however, is separable from the self storage property as the trucks are movable assets that are rented out and can therefore be moved from the property. The truck rental business is therefore not part of the self storage business because it can be conducted in various other types of properties. Movable income streams, such as truck rental, should therefore be excluded and regarded as a separate business revenue with a value of its own that cannot be added to the self storage property value.

The above statements are in agreement with authors such as Blackwell (2009b), who emphasises the importance of valuation on a going concern basis 'based on the net income associated with the operation of the whole of the self storage activities on the property, including all equipment, plant, merchandise stock, furniture and fittings as appropriate, but excluding truck rental'. Sonne (2012) concurs with the above.

Blackwell (2009b) adds that a discounted cash flow (DCF) is useful when variations in occupancy are expected resulting from competition or poor economic conditions.

Rode (2011) agrees with the above and proposed a self storage grading system for South Africa based on the US grading system by Correl (2003) to help establish capitalisation rates in South Africa. The grading system is similar to the office space grading system of A, B and C grade, with A being the highest valued grading. The rationale is that the better grade, the

lower the risk of the facility, and subsequently the capitalisation rate. The adapted Rode (2011) grading system is shown in Table 1:

Table 1: Self storage facility grading system

| Grade | A | B | C |
|-------------------------|--|---|--|
| | Institutional grade facility | Quality middle segment facility | Average to low-quality facility |
| Typical characteristics | <ul style="list-style-type: none"> • High quality construction (spacious lifts for upper floors). • Aesthetically pleasing design (good circulation space in yard & passages). • Typically offers ancillary services/products. • First class security (guards & CCTV). • Sustainable rentals on middle to upper-end of spectrum. • Typically, 5,000m² to 11,000m² • Masonry construction. • Located in highly visible location in retail nodes or retail-warehousing locations (e.g. along a highway). | <ul style="list-style-type: none"> • Exhibits basic design elements probably an older facility, probably a conversion. • Typically has an on-site office and possibly offers ancillary services. • Offers sufficient security. • Located in visible locations along major secondary roads, most likely in industrial areas or secondary retail areas. | <ul style="list-style-type: none"> • Basic design and appearance. • Usually located in secondary commercial, rural and industrial locations with poor visibility. • Rentals typically on the lower end of the spectrum. |

Source: (Rode, 2011)

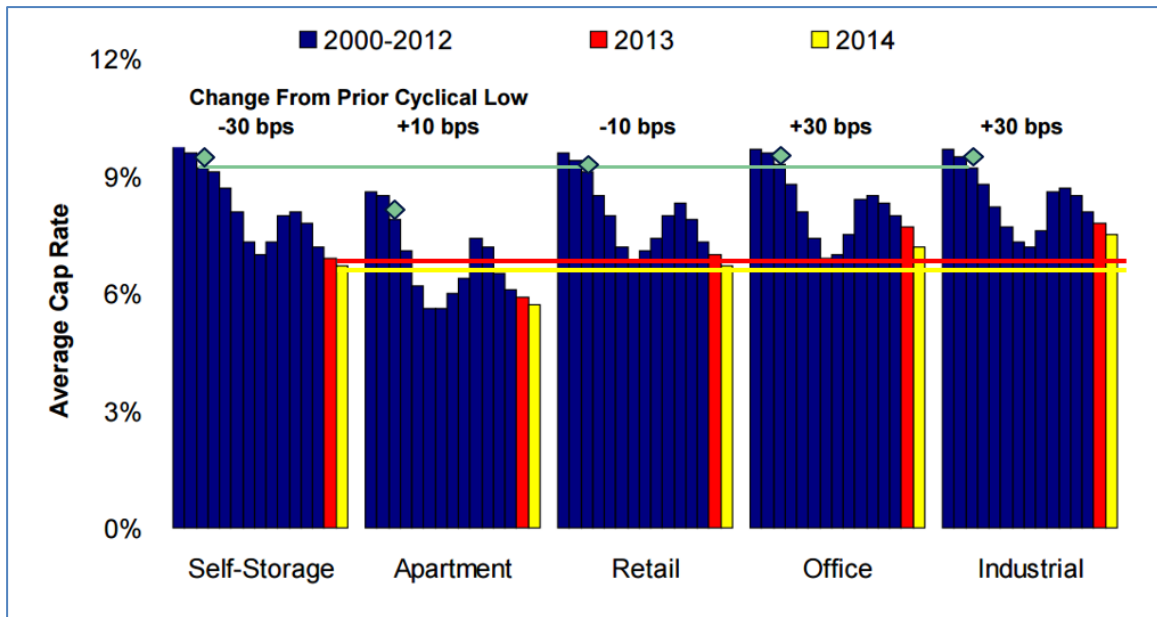
Rode (2011) also established a guideline to indicate the value of the premium that must be added to the industrial prime leaseback capitalisation rate to arrive at an applicable capitalisation rate for self storage facilities. The premium increased as the grading of the facility decreased. It was suggested that a certain premium above the prime industrial leaseback capitalisation rate be added to arrive at an applicable capitalisation rate for the applicable grade of self storage facility. This guideline is shown in Table 2:

Table 2: Adjustment to industrial capitalisation rate to obtain self storage facility capitalisation rate

| Self storage facility grade | A | B | C |
|---|----------|-------|-------|
| Premium added to industrial prime leaseback capitalisation rate | 0.75%–1% | 1%–2% | 2%–3% |

Source (Rode, 2011)

As mentioned in Chapter 1, however, the capitalisation rate of self storage relative to other property types has undergone changes in the last 15 years in both the US and UK. Figure 1 shows the self storage capitalisation rate relative to other property types in the US.



Source (Marcus and Millichap, 2016)

Figure 1: US commercial property capitalisation rate trends

The figure has been adapted with the green, red and yellow horizontal lines to facilitate comparison of the relative levels of three separate years on the graph. When beginning with the green horizontal line at the top of the figure, it can be seen that the self storage capitalisation rate was higher than Apartments in 2003, equal to Retail and slightly lower than Office and Industrial. In 2013 and 2014 (the red and yellow lines respectively), self storage capitalisation rates decreased relative to the other property types and were slightly lower than Retail, but significantly lower than Office and Industrial.

The figure also indicates that self storage capitalisation rates declined the most out of all the property types – a decrease of 30 basis points from the previous cyclical low.

The table below from Sonne (2016) agrees with Rode (2011) and MJ Partners Self Storage Group (2016) that there should be a lower capitalisation rate for Class A self storage facilities, which Rode (2011) refers to as Grade A, than those of Class B and C.

| | Class A | Class B | Class C |
|-----------------------------|---------------|---------------|----------------|
| Discount Rate (IRR): | | | |
| Range: | 7.50% - 8.75% | 8.50% - 9.75% | 9.50% - 10.75% |
| Average: | 8.12% | 9.14% | 9.72% |
| Capitalization Rate: | | | |
| Range: | 4.90% - 5.60% | 5.55% - 6.50% | 6.45% - 8.00% |
| Average: | 5.14% | 6.01% | 6.58% |

Source (Sonne, 2016)

Figure 2: 3Q 2016 – Market segmentation by investment quality

Sonne (2016) also mentions that Class A self storage facilities achieved a nett operating income of US\$10 per square foot compared to Class C, which achieved less than US\$5 per square foot. This shows that Class A properties achieve a premium nett operating income in excess of 100% when compared to Class C, which is in agreement with MJ Partners Self Storage Group (2016).

Loots (2014) further expanded on self storage valuation guidelines by providing guidelines drawn from several global industry specialists on the treatment of self storage Portfolio Management Expenses. This will be discussed in the section below.

Below the focus turns to the discipline of expense guidelines and annual industry surveys.

2.3 Self storage expense guideline literature review

In the discussion below, each expense category is discussed separately by reviewing the recommendations of the various literature sources on each expense category. Other terms referred to in this research are also defined.

Expense category literature is reviewed because the guideline to be established in further chapters of this research includes a guideline on the magnitude and definition for each expense category in a South African context. As each expense category is discussed, insight and context is gained on why the category is important and what the recommended value of the expense is. Expenses are expressed as a percentage of revenue to make them comparable across self storage facilities of various sizes, that is, rentable area per facility, as well as across different currencies.

At the end of the chapter, insight will have been gained on the existing frame of thinking in the literature of what expense ratios should be. This, in turn, provides a framework for the data collection and analysis later in the research.

It important to mention that it is not easy to obtain definitions of expense categories. Sonne (2012) mentioned the difficulty of obtaining consistent expense category definitions for self storage, noting that self storage expense categories are not consistent in the literature sources because the scope and methods of compiling the data varies. This makes it difficult to compare the data at a category level. Furthermore, in most literature where values are given for expense categories, the expense categories are often not defined. This literature review therefore discusses the different definitions and recommendations of the magnitude of each expense category in the literature to provide greater clarity on what the expense category values and definitions should be and where there is still disagreement or uncertainty over the definitions.

The first three expense categories discussed are the three most important, measurable and insight providing categories; they are the focus throughout the rest of this research. The three categories are as follows:

- Total Expense Ratio
- Direct Operating Expense Ratio
- Portfolio Management Expense Ratio.

All expense ratios are presented as a percentage of effective gross income (EGI), so the EGI is defined prior to the above three expense categories for clarity purposes.

Effective Gross Income

EGI consists of rental income and other income, less vacancy and collection loss. Rental income is received from renting out self storage units, where other income comprises late fees, selling unit contents insurance, administrative fees and retail sales such as packaging materials from the self storage facility's on-site shop (Sonne, 2012).

Total Expense Ratio

The Total Expense Ratio refers to the sum of all expenses divided by the EGI. It is usually the most accurate expense category for comparison (Sonne, 2012).

What each literature source recommends as a typical Total Expense Ratio, along with the context in which the recommendation was given is discussed below.

The first literature source is the 2015 *Self Storage Expense Guidebook*. This guidebook does not provide a definition of the Total Expense Ratio, although it does make recommendations on the quantity of the Total Expense Ratio. It reports that the national average of the Total Expense Ratio was 39.5%. For each expense category, the national average expense was also used and divided by the national average turnover to obtain the particular expense ratio. The national average is considered to be the most representative turnover to use in determining the expense percentages.

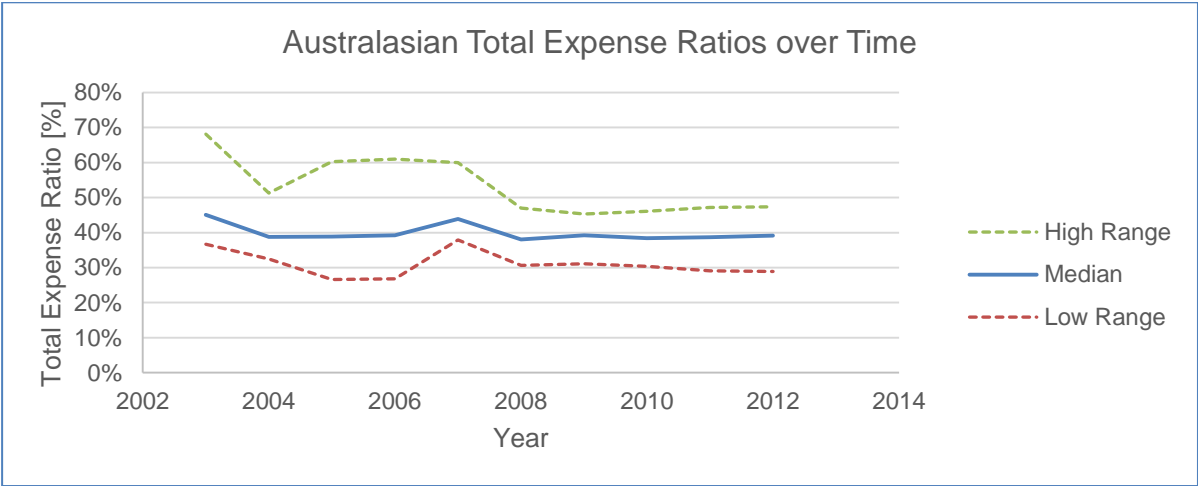
The national average Total Expense Ratio differs, however, from the calculated Total Expense Ratio when one adds up all the expenses reported under separate categories and the divides by the total revenue reported. When calculated in this way, a Total Expense Ratio of 44% is obtained. This could be because the calculated ratio is a sum of category averages and not simply the average of the Total Expense Ratio category alone. After contact with the publisher in Arizona, it was explained that the results are refined per category and the most accurate Total Expense Ratio would be the 39.5% as reported for the Total Expense Ratio category

specifically; 39.5% was therefore selected as the ratio to be used in the guideline this research aims to establish (MiniCo, 2015).

Sonne (2012) does not explicitly state what the definitions or magnitude should be for each expense ratio. He does, however, provide guidance on expenses throughout his book. His first mention of the Total Expense Ratio occurs where he presents the sales data for seven self storage facilities. He states that 31% is a typical low Total Expense Ratio, with the average being 36% and a high Total Expense Ratio ranging around 45% (Sonne, 2012).

Sonne (2012) then follows with a discussion on operating expenses in the section where he discusses valuation of a self storage facility based on the income capitalisation method. Here, each expense category of the first year of investment was estimated based on his expectation of the typical value of each expense category. These values can then be calculated as a percentage of the EGI to obtain an expense ratio. At the end of the discussion, the Total Expense Ratio is given as 37.26%, which is equal to the percentage obtained when one calculates it by adding all the expenses given and dividing this sum by the EGI (Sonne, 2012).

The *Australasian Self Storage Association Almanac* (2012) provides a section on financial performance with a table showing income sources and expenses as percentage of total income. No definition is provided for the Total Expense Ratio, which is given as 50.6% – a high ratio compared to the other guidelines. Historic data is provided in another section, showing a trend of the Total Expense Ratio in a survey of the last 10 years. This trend is displayed in Figure 3.



Data Source (Self Storage Association of Australasia, 2012)

Figure 3: Australasian Total Expense Ratios over time

In the historic data table, the median expense ratio is indicated to be 39.1% for 2012, which is lower than the average Total Expense Ratio for 2012 of 50.6% – the 50.6% is an average for

the year 2012 and the 10-year historic ratio is the median. The Total Expense Ratio of 50.6% for the 2012 survey year has been selected as the more dependable figure to use in the guideline, as it contains a breakdown of all the categories making up the Total Expense Ratio, whereas the 10-year data only shows total expenses with no breakdown of the categories.

Correl (2003) discusses the direct capitalisation method of property valuation. He provides his steps used to arrive at the nett income, which is to be capitalised to arrive at a market value. To obtain the nett income, he provides a sample income statement containing his view of typical income and expenses of a self storage facility. The operating expense percentages are also presented for use by valuers as a guideline for their valuations. The direct operating expenses he uses amount to 32% of EGI; he then adds a 5% management fee to arrive at a Total Expense Ratio of 37% (Correl, 2003). Correl (2003) does not provide a definition of the Total Expense Ratio.

Rode (2011) presents a table in his valuation model that illustrates the income and expenses of a facility under a third-party management contract. When converting the expenses in the table to a percentage of revenue after vacancies have been deducted, a Total Expense Ratio of 44.7% is obtained.

The following Tables, 3 to 11, summarise the range of various expense percentages of revenue recommended by the literature sources. This is to enable easy reference and observation of the variances and/or consensus of the percentage recommendations

Table 3 summarises the recommended Total Expense Ratios described in above literature sources:

Table 3: Total Expense Ratio – summary of literature recommendations

| Guideline literature source | Total Expense Ratio (% of EGI) |
|------------------------------------|---------------------------------------|
| US Expense Guidebook | 39.5% |
| Sonne – Appraisal Institute | 37.3% |
| Correl – Appraisal Institute | 37.0% |
| Almanac – SSA of Australia | 50.6% |
| Rode – SS Properties in RSA | 44.7% |
| Average | 41.8% |

The discussion above indicates a lack of definition of the Total Expense Ratio in the literature.

Direct Operating Expense Ratio

Direct operating expenses are all expenses directly related to operating and managing an individual self storage facility. They include On-Site Management Expenses, Supervisory Expenses and Allocated Overhead. (Public Storage, 2014)

The 2015 *Self Storage Expense Guidebook* does not provide a definition or a separate total for the Direct Operating Expense Ratio, but this can be obtained by adding up all the expense categories comprising the Direct Operating Expense Ratio (on-site management, administrative expenses, property, liability and casualty insurance, real estate taxes, advertising and technology spend, postage, handling and office expenses, credit card and bank charges, phone costs, other, utilities and maintenance and repairs). The sum of these categories was found to be 38% of turnover. This expense guidebook does not provide a definition for the Direct Operating Expense Ratio.

As mentioned in the previous section, Sonne (2012) does not explicitly state his proposed guideline ratios or definitions for each expense category; he does, however, provide guidance on the magnitude of expenses throughout his book. In his discussion on operating expenses as part of his discussion on the valuation of a self storage facility, based on the income capitalisation method, each expense category of the first year of investment is estimated based on his expectation of the typical value of each expense category. These values can then be calculated as percentage of the effective gross income to obtain an expense ratio. When adding all the expenses, except for the off-site management expense, a Direct Operating Expense Ratio is arrived at of 32.3%.

The *UK Self Storage Association Annual Survey (2015)* contains a section on operating metrics, which presents various expense categories as percentage of total operating costs. These percentages can then be converted into percentages of revenue by multiplying the given expense-as-percentage-of-total-expenses by the total-expense-as-percentage-of-revenue ratio. No definitions are provided.

As mentioned, the total-expense-as-percentage-of-revenue is not provided in the survey. To convert this data into the form required for use in the guideline, it has to be assumed that the UK's Total Expense Ratio does not differ materially from the US or Australian Total Expense Ratios. The average Total Expense Ratio of the five other guidelines have therefore been taken as the assumed Total Expense Ratio in the UK, and this average was then multiplied with the expense-as-percentage-of-total-expenses ratio to arrive at an expense-as-percentage-of-revenue. This is a limitation of the UK survey data: if the Total Expense Ratio

could be obtained from the survey data, it would improve the accuracy of this survey data in the guideline.

Due to this limitation, the Total Expense Ratio is not stated in the guideline established in this research, as it is considered to be too uncertain to represent valid data. The direct operating expense has however been shown and used in this research guideline. Following the above method, the Direct Operating Expense Ratio comes to 37.6%. The other expense ratios, such as on site management fees and facility related marketing, have been included in the guideline data as they give an indication of the relative magnitude of expense categories relative to the other guidelines. This has also been noted on the summary tables in section 4 below as a foot note, where readers of the table are referred to this section for an explanation of the assumption.

Using the same methodology as in the preceding section on his Total Expense Ratio recommendation, Correl (2003) indicates a Direct Operating Expense Ratio of 32%. He does not provide a definition for the Direct Operating Expense Ratio.

The Australasian *Self Storage Association Almanac* (2012) recommends a 35.5% Direct Operating Expense Ratio if one sums up all the expense categories provided, excluding the management expense of 15.1%. (Self Storage Association of Australasia, 2012). The *Australasian Self Storage Association Almanac* (2012) also does not provide a definition for the Direct Operating Expense Ratio.

Rode’s (2011) table is used again as per the above discussion on the Total Expense Ratio. When converting the expenses in the table to a percentage of revenue, after vacancies have been deducted, a Direct Operating Expense Ratio of 34.4% is obtained. Rode (2011) does not provide a definition for the Direct Operating Expense Ratio.

Table 4 summarises the Direct Operating Expense Ratio recommended by each source:

Table 4: Direct Operating Expense Ratio – summary of literature recommendations

| Guideline literature source | Direct Operating Expense Ratio (% of EGI) |
|------------------------------------|--|
| US Expense Guidebook | 38% |
| Sonne – Appraisal Institute | 32% |
| 2015 UK SSA Survey* | 38% |
| Correl – Appraisal Institute | 32% |
| Almanac – SSA of Australia | 36% |
| Rode – SS Properties in RSA | 34% |
| Average | 35% |

The discussion above indicates a lack of definition for the Direct Operating Expense Ratio in the literature.

Portfolio Management Expense Ratio

Portfolio Management Expenses refer to the expenses of managing the self storage property portfolio. Portfolio Management Expenses can be expended in varying ways that are discussed below.

The first way in which portfolio management expenses can be incurred is when owners of single facilities contract a third party, who often owns a portfolio of facilities, to manage a facility on behalf of the owner as a third-party manager. The owner then pays a third-party management fee to outsource the management of the facility (Extra Space Storage 2013). Sonne (2012) refers to these as off-site management fees and defines them as the fees that would be incurred by prudent owners for contracted outside management and overhead expenses. This seems to represent the third-party management fee other sources refer to. Blackwell (2009a) also refers to this expense as off-site management costs, portfolio management arrangements, corporate management costs and a management fee (Blackwell, 2009b).

Another manner in which Portfolio Management Expenses can be incurred is in the case of a portfolio of self storage properties that have internal overhead management. This is typically found in the case of the international listed self storage portfolios. These companies refer to this expense in their financial statements as General and Administrative Expenses. This includes the remuneration of senior executives, legal costs, public company expenses, professional consulting expenses and share based incentives. Other expenses incurred at head office include data processing, human resources, operational accounting, finance, central office IT systems and brand-related marketing. A portion of the portfolio management expense is allocated back to the direct operating expenses as allocated overhead, to the extent that efforts are devoted to self storage operations (Public Storage, 2014).

For this research, Portfolio Management Expenses is defined as all expenses of managing the self storage property portfolio, i.e. those of mature and leasing up facilities. This includes the remuneration of senior executives, legal costs, supervisory payroll, and share based incentives.

This is typically found in the company's consolidated income statement and is used to illustrate the expense ratio of operating portfolios with various numbers of facilities (mature and still in

lease up) in a portfolio. It illustrates whether there are economies of scale, or perhaps, diseconomies of scale in self storage portfolios of various sizes.

Regarding the value that Portfolio Management Expenses should be as percentage of revenue, the 2015 *Self Storage Expense Guidebook* indicates the national average as 5.7% (MiniCo, 2015). This guidebook is compiled from small operators' data, and so gives a good indication of the third-party management fees incurred by single-owned facility operators. Sonne (2012) recommends that this expense should be 4 – 6% of EGI (Sonne, 2012).

The *UK Self Storage Survey* does not provide the Total Expense Ratio figure, it does show expenses as percentage of total expenses. If the Total Expense Ratio is assumed to equal the average of the other literature guidelines, in the manner explained in the above discussion of the Direct Operating Expense Ratio in the UK Self Storage Survey, the Portfolio Management Expense Ratio comes to 3.8% (UK Self Storage Association, 2015). Correl (2003) recommends a management fee of 5% of EGI.

The *Australasian Self Storage Association Almanac* (2012) does not give definitions on what the management fee comprises, so it could include the facility-related staff as well as the supervisory and corporate staff. If interpreted that facility-related staff expenses are included in the administration expense of 17.9%, and management refers to the supervisory and corporate staff expenses, the Portfolio Management Expense Ratio understood from this data is 15.1%.

Rode (2011) recommends the management fee to be 10% of gross potential revenue (revenue at 100% occupancy), therefore, if the vacancy loss is subtracted from the gross revenue to arrive at the EGI, as defined for this research, the management fee equates to 10.3% of EGI.

Table 5 summarises the recommendations in the literature relating to the Portfolio Management Expense Ratio:

Table 5: Portfolio Management Expense Ratio – summary of literature recommendations

| Guideline literature source | Portfolio Management Expense Ratio (% of EGI) |
|------------------------------------|--|
| US Expense Guidebook | 5.7% |
| Sonne – Appraisal Institute | 5.0% |
| 2015 UK SSA Survey | 3.8% |
| Correl – Appraisal Institute | 5.0% |
| Almanac – SSA of Australia | 15.1% |
| Rode – SS Properties in RSA | 10.3% |
| Average | 7.5% |

The discussion above indicates a lack of definition of the Portfolio Management Expense Ratio in the literature.

Advertising Total Expenses

Advertising total expenses can be expended on two levels: property level and portfolio level. Property level advertising can comprise outdoor signage, an advertising trailer and Google AdWords fees (Pay per Click) campaigns. Google AdWords are used by Google to sell the opportunity to appear at the top of the Google Search Page when location based keywords are searched such as 'storage Cape Town'. If a self storage portfolio owns a facility in Cape Town, the facility will appear at the top of the Google search page. If a customer clicks on the link, the website owner pays a certain amount depending on the bid price to rank at that specific place on the Google search page. The higher the bid by the advertiser, the higher the advertisement is shown on the Google search page. This advertising cost is directly related to the facility and the visitor is usually taken straight to the location page of the facility in the property portfolio closest to the location searched, where the contact details or reservation page of that facility are then displayed (Dotson, 2016).

Advertising expenses on a portfolio level include brand campaigns by means of television advertisements and public relations campaigns at sport events. Google search AdWords relating to the brand of the portfolio are therefore considered expenses at the portfolio level, which takes the visitor to the home page of the self storage property portfolio (Dotson, 2016).

Due to the administration burden of allocating these various expenses to property or portfolio level, some portfolios take the total advertising expense, including property level and portfolio level, and spread these expenses across all the properties in the portfolio (Big Yellow, 2015). Therefore, the data used for this research shows a single figure for advertising that represents property and portfolio level advertising expenses.

There are no definitions in the literature on what advertising total comprises. For this research, advertising total will be interpreted as the sum of all media advertising and marketing expenses plus all internet advertising and website expenses (Public Storage, 2014). It excludes web site development and maintenance which is included in allocated overhead.

Below is a summary of the percentage of EGI each literature source recommends should be spent on advertising:

Table 6: Advertising total – summary of literature recommendations

| Guideline literature | Advertising total as % of EGI |
|------------------------------|--|
| US Expense Guidebook | 2.6% |
| Sonne – Appraisal Institute | 1.9% |
| 2015 UK SSA Survey | 6.1% |
| Correl – Appraisal Institute | 2.0% |
| Almanac – SSA of Australia | 5.6% |
| Rode – SS Properties in RSA | 1.5% |
| Average | 3.3% |

Online Marketing Expenses

Online Marketing refers to internet advertising and website expenses specific to a facility. It excludes web site development and maintenance expenses, which are included in allocated overhead. Online marketing forms part of advertising total. Only the UK Self Storage Association (2014) provides a guideline on the magnitude of online marketing, calculating it as 9.1% of total expenses in its ‘UK Annual Self Storage Survey’. Converting this number in the same manner as described in the section on the Direct Operating Expense Ratio, it amounts to 3.8% of EGI.

On-site management expenses

On-site management expenses incorporate full-time facility management expenses including assistant managers, relief managers, security guards and payroll-related costs (Public Storage, 2014). It also includes facility operating expenses such as advertising, property and liability insurance, repairs, maintenance and cleaning, utilities and bad debts. This expense is given explicitly in most literature sources, but without any accompanying definitions. Table 7 summarises what each literature source recommends for on-site management expenses:

Table 7: On-site management expenses – summary of literature recommendations

| Guideline literature | On-site management expenses as % of EGI |
|------------------------------|--|
| US Expense Guidebook | 9.0% |
| Sonne – Appraisal Institute | 10.0% |
| 2015 UK SSA Survey | 13.5% |
| Correl – Appraisal Institute | 11.0% |
| Almanac – SSA of Australia | 17.9% |
| Rode – SS Properties in RSA | 12.7% |
| Average | 12.4% |

Property and liability insurance

Property and liability insurance refers to the insurance costs for facilities that include the building structure, third-party and liability insurance as well as fire cover (adapted from) (Sonne, 2012). This expense is given explicitly in most literature sources, but without any accompanying definitions. Table 8 summarises what each literature source recommends for property and liability insurance:

Table 8: Property and liability insurance – summary of literature recommendations

| Guideline literature | Property and liability insurance as % of EGI |
|------------------------------|---|
| US Expense Guidebook | 1.4% |
| Sonne – Appraisal Institute | 1.2% |
| 2015 UK SSA Survey | 1.8% |
| Correl – Appraisal Institute | 1.0% |
| Almanac – SSA of Australia | none provided |
| Rode – SS Properties in RSA | 1.5% |
| Average | 1.4% |

Real estate taxes

Real estate taxes refer to property tax only (Sonne, 2012). This expense is given explicitly in most literature sources, but with no accompanying definitions except for Sonne’s definition (2012). Table 9 summarises what each literature source recommends for real estate taxes:

Table 9: Real estate taxes – summary of literature recommendations

| Guideline literature | Real estate taxes as % of EGI |
|------------------------------|----------------------------------|
| US Expense Guidebook | 10.0% |
| Sonne – Appraisal Institute | 10.0% |
| 2015 UK SSA Survey | 7.0% |
| Correl – Appraisal Institute | 9.0% |
| Almanac – SSA of Australia | 5.9% |
| Rode – SS Properties in RSA | 9.0% |
| Average | 8.4% |

Repairs, maintenance and cleaning

Repairs, maintenance and cleaning refer to electrical maintenance, elevator, landscaping, plumbing, roll up door maintenance, roof, security system, pest control, cleaning and so on (MiniCo, 2015). This expense is given explicitly in most literature sources, but with no accompanying definitions except for MiniCo (2015). Table 10 summarises what each literature source recommends for repairs, maintenance and cleaning:

Table 10: Repairs, maintenance and cleaning – summary of literature recommendations

| Guideline literature | Repairs, maintenance and cleaning as % of EGI |
|------------------------------|--|
| US Expense Guidebook | 3.0% |
| Sonne – Appraisal Institute | 1.8% |
| 2015 UK SSA Survey | 3.0% |
| Correl – Appraisal Institute | 2.0% |
| Almanac – SSA of Australia | 2.9% |
| Rode – SS Properties in RSA | 3.6% |
| Average | 2.7% |

Utilities

Utilities refer to expenses for electricity, water, sewer service, garbage and levies. They vary relative to the design of the building, number of levels, and features that increase the operating expense, for instance, climate control (Sonne, 2012). This expense is given explicitly in most literature sources, but there are no definitions in the literature thereof except for Sonne (2012).

Below is a summary table of what each literature source recommends Utilities should be:

Table 11: Utilities – Summary of literature recommendations

| Guideline literature | Utilities as % of EGI |
|------------------------------|-----------------------|
| US Expense Guidebook | 3.0% |
| Sonne – Appraisal Institute | 3.7% |
| 2015 UK SSA Survey | 2.5% |
| Correl – Appraisal Institute | 3.0% |
| Almanac – SSA of Australia | none provided |
| Rode – SS Properties in RSA | 2.3% |
| Average | 2.9% |

Other Definitions

The definitions presented below are not expense category definitions, but are ancillary to expense category definitions. They are necessary to understand the self storage industry and discussion in this research.

Allocated overhead: Allocated overhead consists of administrative functions performed on behalf of self storage facilities at the head office; it forms part of Portfolio Management Expenses. These functions include data processing, human resources, operational accounting and finance, marketing and expenses of senior executive salaries other than that of the CEO and CFO which are included in General and Administrative Expenses. (Public Storage, 2014)

Consolidated Expenses: Consolidated Expenses refer to all-in expenses of the portfolio, i.e. those of mature and leasing up facilities. This is used to illustrate the expense ratio of operating portfolios with various number of facilities in each portfolio; it illustrates if there are economies of scale, or perhaps, diseconomies of scale. These expenses should be divided by the consolidated EGI.

Dynamic pricing: Different markets manage their prices to target different occupancy levels in their self storage facility, even on a unit size basis. This means storage unit prices may vary according to the occupancy level of the particular size of units. It is possible to change rental rates monthly, because of a landmark court case ruling in Australia where it was ruled that the contract to rent a storage unit is not a rental contract, but an agreement for a licence to store goods in a storage unit, on a monthly basis, within the owner’s warehouse. This principle has been followed by operators across the world (Blackwell, 2009b).

Some facility operators therefore change their rental prices on a monthly basis. They choose different intervals to adjust their prices, but the period is mostly 6 months. Some operators choose to keep to 12-month periods after which prices may be increased (Blackwell, 2009b).

For example, a self storage operator might target 85% occupancy; therefore, when his 9 square metre units reach 85% occupancy, the unit price would increase for new customers. On the other hand, when the occupancy drops to 75% for instance, the price decreases.

Effective Revenue: Effective Revenue is used interchangeably with EGI, which is the total revenue generated at a facility including rental revenue, less vacancy, plus other income sources consisting of items such as packaging sales, insurance sales and fee income (Sonne, 2012; MiniCo, 2015).

Leaseback: A lease where the tenant pays all operating expenses for 10 years or longer, typically with 5-yearly rent reviews or fixed yearly escalations for a tenant with a strong covenant (Rode, 2015).

Lease-up period: The time taken for a self storage facility to reach mature occupancy levels, measured from the date of completion of construction. This period is usually between 24 and 48 months (Blackwell, 2009b).

Mature occupancy level: Facilities with an occupancy level of above 80% are considered to be mature in the US according to Sonne (2012), 65–70% in the UK according to the UK Self Storage Association (2015), 85–90% is considered mature in Australasia according to Blackwell (2009a) and 75–95% in South Africa, depending on facility location according to Rode (2011).

Prime industrial-building grade: An industrial property that has quality lettable space because it complies with each of the following requirements:

- Generally in a good condition
- Satisfactory macro access (i.e. access to freeway)
- Satisfactory micro access (i.e. from street to building)
- Proper loading facilities
- Eaves larger than 4 m (excluding micro/ mini units)
- Wide and clear span of trusses (few internal pillars)
- On ground level
- Sufficient three-phase electrical power.

These eight conditions above are requirements for a building to be considered a prime industrial grade building. However, a building may have additional improvements that could improve the demand with potential tenants thereby increasing the potential tenant pool. Such enhancements could include sufficient office accommodation and parking, sprinkler systems,

brick work up to sill height, floors that can accommodate high weight loads, roof insulation, sufficient yard space and a good location (as opposed to access) (Rode, 2015).

R-squared (R²): The R-squared statistic or, R² value is a statistic generated in ordinary least squares regression and is used as a goodness-of-fit measure. It gives an indication of how much of the variation in the data is explained by the model, or in the case of a regression line, how fitting the regression line is to the plotted data. The R² value can be between 1 and 0. A R² value close to 1 indicates that the model explains much of the variability, or that the regression line fits closely. When the R² value is close to 0, it indicates that the model does not explain much of the variability, or that the regression line does not fit well. The closer the R² value is to 1, the more the model explains the variability, or the more fitting the regression line is (Institute for Digital Research and Education, 2011).

The R² value is used in this research to show how fitting the regression line is that is plotted between the data points of expense ratio versus number of facilities of each portfolio in section 4.4.4 below.

Same Store facilities: Same store facilities refer to facilities that have been owned and operated on a stabilised basis with mature occupancy levels and therefore provide meaningful comparisons for the purpose of a guideline. The Same Store expenses should be divided by the Same Store effective gross income to obtain a Same Store Expense Ratio (Public Storage, 2014).

2.4 Background to valuation guidelines and annual industry surveys

A short description of each literature source follows below to give context of the nature of the literature and how it was used to compile the expense category guidelines in the previous section. The credibility of the literature can also be ascertained from this discussion.

2015 Self Storage Expense Guidebook

The *US Self Storage Expense Guidebook* is an annual industry survey publication by MiniCo Insurance Agency (MiniCo), published in the US. MiniCo identified the need for more detailed expense ratio data than in other publications available at the time. It has become the leading source in the industry since 2004 for self storage expenses. The guidebook gives a detailed breakdown of expenses in the form of averages per region in the US and also expense figures for the entire US. Secondary to the average data, expenses per square foot are also provided. (MiniCo, 2015)

Self storage Economics and Appraisal (Sonne, 2012)

Self Storage Economics and Appraisal was published by the Appraisal Institute in 2012 as a guideline on valuation of self storage facilities. The Appraisal Institute is a well-known organisation in the field of valuation of real estate and the publisher of *The Appraisal of Real Estate* and other valuation publications. The self storage publication was authored by Christian Sonne.

2015 UK Self Storage Association Survey

The 2015 *UK Self Storage Association Survey* is an annual industry survey conducted by the Self Storage Association of the UK among its members. The 2015 survey was produced in association with Cushman & Wakefield, who have experience in valuation of self storage facilities in the UK, US, Europe and Asia. The survey comprises data from 73 companies totalling 433 facilities. This represents over 40% of self storage facilities in the UK (UK Self Storage Association, 2015).

Market Analysis and Valuation of Self storage Facilities (Correl, 2003)

This handbook by Mr Richard Correl was published by the Appraisal Institute before the Appraisal Institute's latest publication, which was authored by Sonne (2012). It is one of the first official reference texts and frameworks for valuation of self storage facilities in the US. The book covers the history of self storage, building characteristics, market analysis, valuation methods and a case study on valuation of a specific self storage facility in the US.

Australasian Self Storage Almanac 2012

The *Australasian Self Storage Almanac* is an annual industry survey similar to the almanac published annually for the US market, but this almanac focuses on the Australian and New Zealand markets. It contains data and analysis on a wide array of self storage parameters including Australasian population statistics, occupancy and rental rates, building characteristics, operation and maintenance costs, number of insurance incidents, financial performance, expectations and confidence levels and self storage supply metrics.

It also has a valuable section on expense ratios that was used as a basis for this research.

Self storage properties in South Africa: A valuation perspective (Rode, 2011)

Rode Valuations was approached by a consortium of the four biggest self storage portfolios in South Africa (also the four case study portfolios in this research) to compile a report on the South African self storage property market. It was required to provide an independent view on

the appropriate valuation methodology, capitalisation and discount rates, and address other necessary valuation issues such as expense ratios. Rode (2011) presented a table in his valuation model that illustrates the income and expenses of a facility under a third-party management contract. This data has been used in this research.

Conclusion

The review of literature on valuation of self storage facilities, has been discussed in this section. It has been shown that the net income of a facility is used as a key variable of the valuation methods used to arrive at a market value of a self storage facility. Reference has been made to expense guidelines – guidelines on what expenses should be used to obtain a realistic net income.

A discussion on the contentious treatment of portfolio management expenses observed in the literature is presented in the section below.

2.5 Portfolio management expenses and valuation

In estimating the Total Expenses of a self storage facility for valuation, it is the current practice of valuers to disregard the portion of actual expenses of a self storage facility that are incurred off site at the head office, and rather to add a standard Third Party Management Fee of 4–7% to the direct operating expenses (Correl, 2003; Blackwell, 2009a; Rode, 2011; Sonne, 2012).

The rationale behind this is that every self storage facility and portfolio will have head office expenses, and even an owner of a single facility would have to perform these overhead management tasks. If the owner of a single facility outsources these tasks, a third-party, professional self storage management company is usually appointed, which charges a 4–7% Third Party Management Fee in addition to the Direct Operating Expenses incurred at the facility. The third-party manager is usually a company that already owns a portfolio of self storage facilities. This Third-Party Management Fee is what the authors of the valuation guidelines use to gauge the quantum of the market related Portfolio Management Expenses of running a portfolio (Interviewee 1, 2016; Interviewee 2, 2016; Interviewee 3, 2016).

The counter argument to reasoning that the evidence of the Third-Party Management Fee can be used to indicate the typical Portfolio Management Expenses, is that the Third-Party Management Fee is not an arm's length transaction because the reward for performing the third-party management duties does not only lie in the Third-Party Management Fee. The other non-fee incurring benefit to the company performing the third-party management duties is that the contract between the parties usually includes a clause that gives the third-party manager first option to acquire the facility should it come up for sale. This confers a benefit on the third-

party managers because not only do they have first option to acquire the facility, but they also have first-hand data and experience of the income producing capability of the facility and so can determine an accurate valuation and mitigate the risk of buying at an inflated price. A further benefit to third-party managers is that they can spread the Portfolio Management Expenses over a larger base to achieve further economies of scale and lower their own overhead/Portfolio Management Expense (Interviewee 2, 2016).

In relation to Portfolio Management Expenses in valuation, Loots (2014) showed that if Portfolio Management Expenses were included in the valuation of a portfolio of self storage facilities, a lower capitalisation rate must be applied to allow for the reduction in risk due to diversification of income streams across all the portfolio facilities. Furthermore, specialised management skills are obtained from the professional portfolio management team managing the facility, which adds specialised operational, marketing and information technology systems that improve or maintain high occupancy and enhance rental escalation and thereby total return. A report by The MJ Partners Self Storage Group (2016) confirms this view by stating that when a portfolio is acquired, the capitalisation rate is lowered by 50 to 75 basis points when compared to single asset transactions (MJ Partners Self Storage Group, 2016).

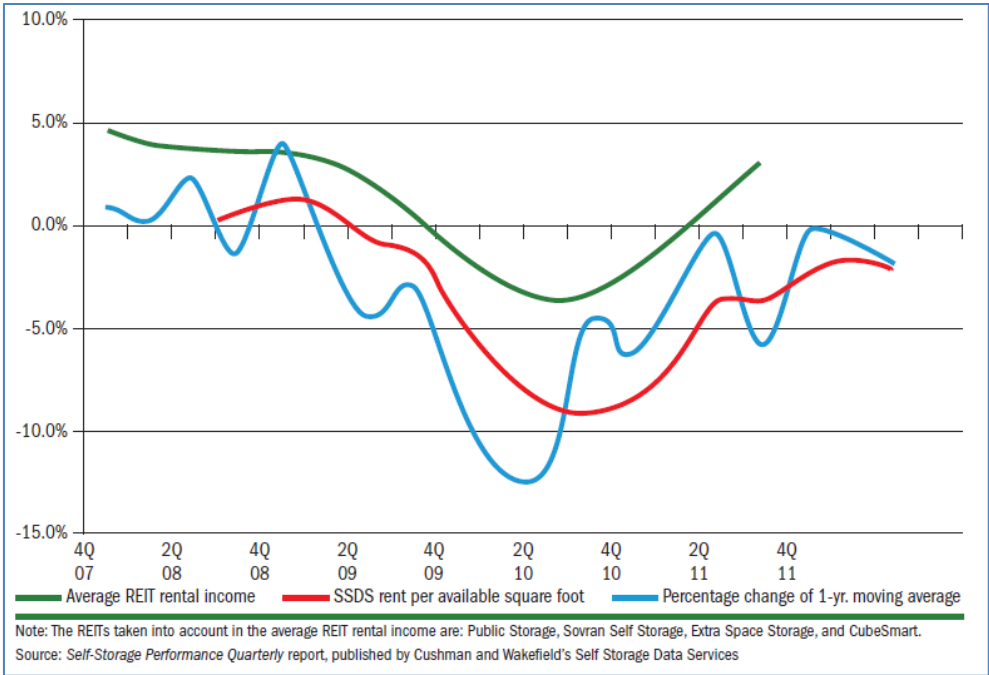
Additional benefits of operating several facilities in a portfolio can arise by considering the barriers to entry and specialised and expensive management skills required to enhance the revenue and subsequently the value of self storage facilities. Such managers can only be afforded if a portfolio of facilities is managed together to spread the expenses of manager remuneration (Blackwell, 2009a).

Barriers to entry include having to conduct specialised feasibility studies to ensure demand for a potential self storage development is sufficient. Self storage developments are speculative as they have no anchor tenants before the development is undertaken (Blackwell, 2009a). Feasibility studies for self storage therefore need to be thoroughly researched and need to consider factors such as trade area analysis. This includes time-distance travel relationships, land use patterns, natural barriers and psychological factors. Other factors include the current supply of self storage, determining demand for self storage through demographic analysis and estimating market equilibrium (Sonne, 2012).

In the US, data services are available which provide insight on the demand trends in a market. These demand trends are critical in the self storage industry. This figures below show an example of the type of data needed to carry out a feasibility study. It also illustrates the quality of data that is available in the US, for which there is need in South Africa. The data available in the US is data that, for example, shows if rental rates are increasing, which indicates a growing demand for the amount of vacant storage space supplied. This is a critical parameter

when evaluating the feasibility of a new self storage facility, especially when considering the speculative nature of self storage developments. Furthermore, self storage is highly supply/demand sensitive so supply and demand (of which a closely related parameter is vacancy) is a critical consideration. Below follows some examples of data that is available in the US market:

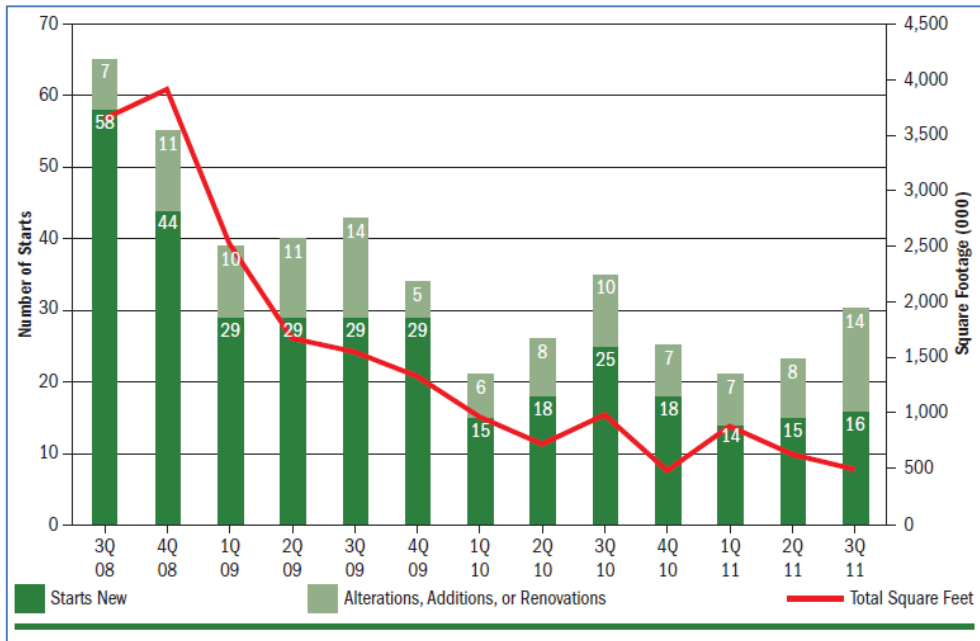
- Rent per available storage area (see Figure 4 below), indicating if rental rates are increasing, which indicates a growing demand for the amount of vacant storage space supplied (Sonne, 2012)



Source (Sonne, 2012)

Figure 4: Rent per available storage area

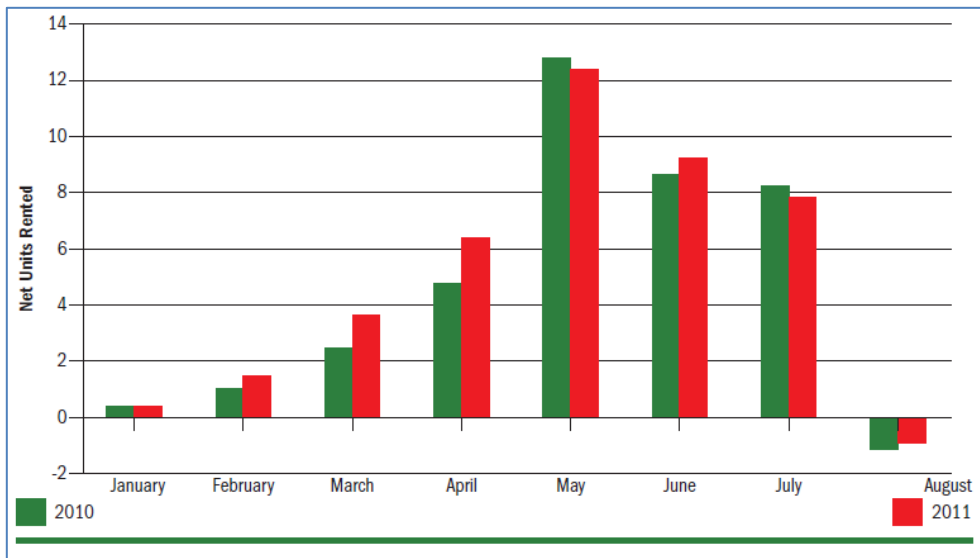
- Total new self storage construction, which indicates the rate at which demand is met with new supply.



Source: (Sonne, 2012)

Figure 5: Total new self storage construction

- Net units rented per facility per month, which indicates the absorption rate that can be expected.



Source (Sonne, 2012)

Figure 6: Net units rented per facility per month

To complete the discussion on barriers to entry in the section above figures 4 and 5, a number of additional barriers to entry are mentioned below:

- Having a strong enough balance sheet and cash flow from other facilities to endure a 24 to 48 month lease-up period (Blackwell, 2009a).
- Obtaining finance for such a specialised property type (Blackwell, 2009a).
- Specialised marketing skills to attract self storage customers (Blackwell, 2009a). Self storage has become a virtual real estate sector just as much as it is a physical real estate sector. Internet marketing for self storage is highly specialised in terms of website design, online reservation capabilities and search engine optimisation (Dotson, 2016).
- Systems to ensure good customer service and subsequent high occupancy levels
- Ability to maximise revenue by monitoring the unit size mix and pricing structures (Blackwell, 2009a). Drive-up units are for instance popular in suburban markets but multi-storey buildings are popular in urban in-fill markets. There are important physical characteristics that must be relevant to the market the facility is located in to maximise revenue and therefore property value (Sonne, 2012).
- Capacity to ensure rental default and bad debt is kept to a minimum by having strong financial control systems (Blackwell, 2009b).

2.6 Limitations of scope and key assumptions

The research is limited to data derived from mature self storage markets. It considers expense ratios of self storage facilities and portfolios in the US, UK and Australasia to compare to South African facilities and portfolios. Published expense ratio data is available for these countries, which ensures more reliable data and analysis results.

Data for Direct Operating Expenses was only sourced from self storage facilities that have reached a mature occupancy level, referred to in the self storage industry as 'Same Store' facilities (Public Storage, 2014). This is necessary when establishing a guideline because operating expenses as a percentage of revenue will be significantly higher for facilities that are not operating at mature occupancy levels while in the lease-up phase. Facilities in the lease-up phase have lower turnover, but already carry the many fixed expenses associated with operating a self storage facility. The ratio of expenses over turnover will therefore be much higher than for leased up facilities and so would not be suitable for establishing a guideline (Blackwell, 2009b).

The data for Portfolio Management Expenses considers both mature and leasing up facilities, as the efficiency of portfolio managers in growing a portfolio will be measured in the total Portfolio Management Expenses of both mature and leasing up facilities.

Expense ratios of portfolios with sizeable facilities of around 3,500 to 14,000 square meters were used because self storage facilities have mostly fixed costs, and portfolios with small facilities therefore skew the results as they have lower turnover relative to their expenses than larger facilities (Blackwell, 2009a).

The South African case studies were limited to four large self storage portfolios that are considered to satisfy the mature and sizeable facility requirement (Rode, 2011).

A note on the art and dangerous soil to be trodden when attempting to establish a guideline, which is mentioned in the literature, is considered important to point out as a limitation of this research. Those experienced in categorising expenses and establishing definitions for a guideline will understand that it is a never-ending debate that is open for counter arguments. Users should however be better off having a close answer than no answer on what expense ratios should be. It is in this spirit that the research is presented. The data presented is in a digested form of actual accounting data from the various sources. It therefore differs slightly from its original form as it is reported in this research; it is not presented as inarguably accurate, it is a best effort to make sense of a complex subject. Digestion of the data into a common form was done in an attempt to measure performance of all the entities on an equal basis, and this requires some adaptation of the original data into the form used to evaluate all the entities.

This difficult task was also mentioned by the Self Storage Association of Australasia in its 2012 annual market survey. It warns readers especially on interpreting data in the section on income and expenses by stating that performance varies significantly between operators and that their data is 'purely an indication of industry averages', and does not necessarily represent a 'typical' self storage business. In the foreword, the chairman of the Self Storage Association of Australasia states that the data is 'sometimes criticised and other times lauded. Whatever your view, as a guide and based on statistical analysis, it offers an excellent data set for all members and those seeking industry information' (Self Storage Association of Australasia, 2012). It is interesting to find that others also find difficulty with industry surveys and data representation, and that it is generally agreed that even though not exact, an approximate answer serves more purpose than no answer.

2.7 Conclusion

To conclude, the literature on valuation of self storage was reviewed. It was shown that expense guidelines and benchmarks are required in valuation to ensure the expenses used to obtain the net income are market related. Expense guidelines are also used to benchmark management's efficiency.

Available expense guidelines and benchmarks were discussed and their key findings presented. The most important findings of the guidelines and benchmarks, are that Total Expense Ratios range from a low of 37% to a high of 51%.

The literature review covered self storage expense category definitions and recommendations, and introduced industry definitions where they were provided in the literature reviewed. The literature review revealed a lack of standard industry definitions of self storage expense ratios. Where definitions have been established, they are used; otherwise, they are defined for this research as proposed in the discussions above.

A discussion on the methodology for this research follows in Chapter 3.

Chapter 3 Methodology and data collection

3.1 Introduction

This chapter discusses the research methodology. It begins by showing why a case study was the applicable methodology to use. It then justifies the rationale of choosing the sources of data. Following this, the method of analysing the data is justified along with a detailed explanation on why certain expense categories were defined as they are.

The chapter concludes with a discussion on the limitations of the methodology and ethical considerations.

3.2 Case study as methodology

The case study method of research as described by Yin (1994) is used in this research. Findings are quantitative and qualitative in nature in relation to the research questions, which are also both quantitative and qualitative. Due to the use of qualitative as well as quantitative research, the process of triangulation was utilised (Webb, 1966).

3.2.1 Research approaches

Creswell (1998) and Yin (2012) summarised three approaches to research: quantitative, qualitative and mixed methods.

Quantitative research seeks to test a hypothesis or theory by using numerical variables. It often makes use of statistics and is regarded to be more analytical in nature than qualitative research. Examples of quantitative variables include interval scale variables, such as temperature, or ratio scale variables such as counts, physical measurements and time (Creswell, 1998; Yin, 2012).

Qualitative research problems, on the other hand, cannot be solved by solely measuring a numerical variable. This research approach places emphasis on taking a holistic approach to determining which subjects must be studied, and thereafter analysing detailed views of the chosen study subjects in their natural setting. It includes perceptions, views and events not necessarily in a numerical form. It rather uses textual data, with categorical information such as gender, eye colour, nationality, opinions, weekdays or seasons to obtain insight into the phenomena under research (Creswell, 1998; Yin, 2012).

The above two approaches, namely quantitative and qualitative research, are often used exclusively because of their opposing characteristics and approach. A quantitative approach

is often described as being a ‘hard’ data driven approach with a scientific underpinning from which hypotheses can be proved or disproved. Qualitative research is often perceived to be more of a ‘soft’ and ‘grey’ science with a lesser degree of traditional ‘hard’ scientific evidence, especially when used in the context of social science (Evans, 2014).

Creswell (1998) showed that the use of multiple methods, which combines both a quantitative and qualitative approach has merit. This approach to research is termed as triangulation by Webb *et al.* (1966) or Convergent Methodology by Campbell and Fiske (1959). This approach is advocated when qualitative and quantitative research can be used in a complementary manner to increase the sources of evidence and credibility of the findings (Creswell, 1998).

The choice between the research approaches discussed above will be influenced by the nature of the data in the research. The research strategy however, must be determined by other factors and can be applied to both approaches, irrespective of the nature of the data. The research strategy is discussed below.

3.2.2 Research strategy

The research strategy is determined by three conditions according to Yin (1994):

- The research questions
- The extent of control the researcher can exercise on the actual behavioural events
- The extent to which the research focuses on contemporary rather than historical events.

Considering the above three conditions, a decision can be made on which of the five research strategies is most applicable. The five options are experiments, surveys, archival analysis, history or case studies (Yin, 1994).

Yin (1994) provides a table indicating the five strategies with the corresponding conditions which makes each strategy applicable as shown in the table below.

Table 12: Relevant conditions for different research strategies (Source: Yin (1994))

| Strategy | Form of research question | Requires control over behavioural events? | Focus on contemporary events? |
|-------------------|--------------------------------------|---|-------------------------------|
| Experiment | How, why | Yes | Yes |
| Survey | Who, what, where, how many, how much | No | Yes |
| Archival Analysis | Who, what, where, how many, how much | No | Yes/No |
| History | How, why | No | No |
| Case Study | How, why | No | Yes |

The guidance of Yin (1994) on when to use experiments, surveys and case studies can be summarised as follows:

- Experiments asking ‘how’ and ‘why’ are mostly used where the researcher can control the behavioural events around the subject being studied, such as in a laboratory.
- A survey is more appropriate when control cannot be exercised by the researcher and data needs to be obtained on an event that cannot be observed directly. This method is usually indicated as the applicable method when the questions ‘how many’, ‘how much’, ‘who’ or ‘where’ are required. A survey is usually conducted on the population of the subject matter to bring understanding of the characteristics of the subjects.
- Case studies are required when the research has to consider multiple sources of data in combination to provide understanding on the particular case under study. It differs from a survey in that the question ‘why’ is asked in addition to ‘how’ as it has an explanatory goal. It requires links to be drawn between the data sources rather than solely analysing frequencies or incidence (Yin, 1994).

Holt (1998) indicated that experiments, surveys and case studies are mostly used for research in the Property and Construction field.

The section below justifies the use of a case study as the applicable strategy in this research.

3.2.3 Justification of the research strategy

The research conducted in the literature review and the data collection process, which will be outlined in further sections of the methodology below, comprise data such as expense ratio percentages and expense ratio definitions. This indicates that the data is of both a quantitative nature (expense ratio percentages) and qualitative nature (textual expense ratio definitions), therefore requiring the use of a mixed method research approach.

Regarding the choice of research strategy, the research questions should be considered, namely:

- (e) What should the South African self storage expense guideline be for portfolio investments?
- (f) How do the established South African expense guidelines compare to international benchmarks?
- (g) How should expenses be classified – as Direct Operating Expenses or Portfolio Management Expenses – to enable market comparison?
- (h) How would economies of scale affect self storage expense ratios?

Considering that control over the behavioural events was not possible as external operating self storage portfolios were researched, an experiment was eliminated as a strategy option. Furthermore, recent financial results were used, which are contemporary events, so history and archival analysis were also eliminated as a strategy. Only surveys and case studies were then available as the remaining strategy options.

The research questions provide guidance on whether this research could be in the form of a survey or a case study. There are approximately 350 self storage facilities in South Africa, indicating a sufficient population to do a survey on (Storage RSA, 2016). However, the third research question ‘How should expenses be classified – as Direct Operating Expenses or as Portfolio Management Expenses – to enable market comparison?’ implies that only self storage portfolios were relevant to include in the research. This is because single-owned, self storage facilities have no Portfolio Management Expenses as they are owned by a single entity with only one facility, thereby lacking both a portfolio to manage and related expenses. This narrowed the sample available for research down to the four existing self storage portfolios in South Africa. The remaining self storage facilities are single-owned facilities, which reflects the fragmented nature of the industry found internationally and discussed in Chapter 1.

The second research question, ‘How do the established South African expense guidelines compare to international benchmarks?’ indicates that comparison with international self storage portfolios is required. The only data source of international self storage portfolios is data from listed international self storage portfolios. This data availability therefore restricted the research population to self storage portfolios that operate on a similar basis to the listed international self storage portfolios. The similarity criteria is that facilities must be of similar size in terms of rentable area and be professionally managed.

The portfolios included in the research must be professionally managed to reflect the expenses incurred to have facilities operating at optimum profitability and occupancy. The above similarity requirement between South African self storage portfolios and international portfolios reinforces the reasoning to consider only the four South African portfolios and not the entire population of 350 facilities.

A survey could also not be the applicable research strategy due to the 100% response rate of the research. The total respondents equalled the population, which is not characteristic of a survey, which has a typical response rate of between 1% and 60% (Cook, 2000).

The following factors further indicated that a case study strategy was the most applicable strategy for this research:

- The research questions ask ‘how’ and ‘what’ and ‘why’.

- The researcher had no control over behavioural events.
- Contemporary events were researched.
- Multiple sources and forms of data were combined to answer the research questions. Data sources included qualitative data in the form of expense ratio definitions from valuation guidelines, annual industry surveys, listed international financial statements and unstructured interviews. Quantitative data was used to obtain numerical data of expense ratios from valuation guidelines, annual industry surveys, listed international financial statements, the four case studies and unstructured interviews
- This description indicates that this research needs to consider more than frequency and incidence, as in the case of a survey. It needs to take a holistic approach to obtaining information from many sources to improve understanding of the behavioural events affecting self storage expense ratios.
- A further characteristic of this research, which indicated a case study was the applicable methodology was that no academic guidance was available on the framework with which to research self storage expense ratios. A case study was therefore required to create a framework for the research, which can be followed, reviewed and improved in future.

Having justified the case study methodology, the research design is presented.

3.2.4 Research design

Yin (1994) highlights five components of the research design:

- Research questions
- Research propositions
- Unit(s) of analysis
- Logic linking the data to the propositions
- The criteria of interpreting the findings.

The five components of the research design, as outlined above, are discussed below:

Research proposition

As mentioned in section 1.6 above, the research proposition is that a guideline of South African self storage expense ratios is required to understand and enable efficient investment and evaluation of SA self storage investment returns and opportunities.

South African expense ratios compare favourably with international benchmarks but the categories lack standard definitions.

Economies of scale exist in expense ratios of self storage portfolios and this research aims to identify if and where such economies of scale lie.

Research questions

As stated in section 1.4 above, the research questions are:

- (a) What should the South African self storage expense guideline be?
- (b) How does the South African expense guideline compare to international benchmarks?
- (c) Which expenses should be classified as Direct Operating Expenses, and which should be classified as Portfolio Management Expenses?
- (d) Do economies of scale exist in self storage expense ratios?

Units of analysis

The units of analysis for this research were the four South African self storage portfolio cases.

Logic linking the data to the propositions

Pattern-matching as described by Campbell (1975) was used to link the data to the propositions. This involves relating various pieces of data from similar cases to the research proposition. In this research, valuation guidelines, annual industry surveys, listed international self storage portfolios and South African self storage portfolio case studies were analysed to identify patterns and links between the data and the case studies according to the framework developed in the methodology of this research, which enabled the research propositions to be fulfilled.

Criteria for interpreting the findings

The criteria for interpreting the findings was the degree to which the various sources of data of expense ratios were in agreement. If they were in agreement with the cases analysed, a guideline for South African self storage portfolios was proposed.

Secondly, it was also then able to be understood to what extent South African self storage portfolios are in line with listed international self storage portfolios.

Thirdly, if the definitions in the sources of data differed or lacked definitions, it proved a lack of standard definitions on self storage expense ratios in the industry.

Lastly, the degree to which expense ratios decreased as the number of facilities in a portfolio increased indicated the extent of economies of scale in a self storage portfolio.

Having justified the case study methodology, the next section describes why the data sources were chosen, the methodology followed to conduct the case study and how it was used to collect and analyse the data.

3.3 Justification for the sources of data

This section explains the rationale behind the choice of data sources – the international listed self storage portfolios, South African case studies and semi-structured interviews.

To establish a guideline on expense ratios for South African self storage portfolios, the international self storage industry provides both a yardstick and data, in addition to which, the self storage market in South Africa is relatively young and of limited size: the market only began in the 1980s and the current market size is approximately 350 facilities (Storage RSA, 2016). More data is inevitably available internationally considering the mature and large self storage markets, such as the one in the US for instance, which dates back to the 1960s and comprises over 52,000 facilities (Sonne, 2012).

Secondly, there is a lack of data on large portfolios in South Africa, compared to those that are found internationally. South Africa's biggest portfolio comprises approximately 40 facilities, compared to the US for example, where there is a spread of portfolios with 5 facilities up to the size of Public Storage, which alone manages just under 2,500 facilities, (Public Storage, 2014).

3.3.1 International listed self storage portfolios

Although the international listed portfolio sample used in this research is considered to be mostly representative of the population of the listed self storage portfolios throughout the world, the sample was specifically selected according to the relative similarity of their markets to that of South Africa, since the aim is ultimately to propose a guideline for South Africa. Three of the six US listed self storage REITs are included in the data (REIT.com, 2016), one of the three UK portfolios (London Stock Exchange, 2016) and the only listed self storage REIT in Australasia is also included in the data.

The similarity criteria was the income level and income density of these markets, which also impacts the demand for self storage space (Storage RSA, 2012).

The supply per capita of self storage space was used as a second similarity criteria. These markets differ in their storage space supplied per capita, but mostly due to the age of the self storage concept in these countries, except in the US where supply is significantly higher. Research by Storage King illustrates that market penetration grows with time, as potential clients become more aware of the product and its benefits to them (Storage RSA, 2012). The

supply and demand characteristics of each market are, however, a science on their own and not the focus of this research.

The data samples used also represented a wide spectrum of portfolio sizes ranging from close to 2,500 facilities to just over 80. It is a limitation that smaller portfolios have not been used in the international research data, but this is due to limited data availability. Data was not available for listed self storage portfolios that match the relative similarity criteria with fewer than 80 facilities.

3.3.2 South African case studies

South Africa has four large self storage portfolios that operate and own self storage facilities with facility sizes similar to the comparable international portfolios. They own a spread of grade A to grade C facilities with some portfolios owning a mix of A, B and C grade facilities. Refer to Table 1 and Table 2 in Chapter 1 for a definition of the grading types.

The sample of the South African market is comprehensive in terms of its large portfolios. There are many single owners and operators in South Africa that have not been included as they do not have comparable Portfolio Management Expenses. As mentioned in the introduction to this research, these four portfolios comprise approximately 32% of the market share in terms of leasable floor area (Storage RSA, 2012).

3.3.3 Semi-structured interviews

Semi-structured interviews with industry specialists were conducted to confirm if the preliminary findings of the research were in line with their experience in the industry. Three interviews were conducted in the United Kingdom and United States of America. The details of the interviews are as follows:

- **Interviewee 1:** A professional valuer and a director in the Alternative property type division of one of the largest commercial real estate services and investment management firms in the world. The interview was conducted at one of their offices in London on 1 September 2016. This director has experience with self storage valuations in the UK and other self storage markets in Europe, and has been involved in various self storage portfolio sale and acquisition transactions in Europe.
- **Interviewee 2:** A professional valuer and a partner in the Valuation and Advisory division at one of the largest global real estate services firms in the world. The interview was also conducted at one of their offices in London on 1 September 2016. This firm has been responsible among others, for valuations of self storage facilities of the largest self storage portfolio in the UK and for the compilation of the annual UK self storage survey.

- **Interviewee 3:** A professional valuer and Executive Vice President in the Self Storage Valuation Group division of one of the world's largest real estate investment management firms. This interview was held in Las Vegas on 8 September 2016. This valuer has published a valuation guideline for the Appraisal Institute and was responsible among others for valuing the second largest self storage portfolio in the US. This valuer also manages his firm's self storage valuation department which consists of approximately 40 valuers focusing solely on self storage valuations.

3.4 Justification for the method of analysing the data

This section explains the method of analysis of the data and then provides a detailed explanation on why certain expense categories were defined as they are.

3.4.1 Justification of the analysis methodology

The methodology comprised four stages.

The first stage summarised data obtained from the literature review of valuation guidelines and annual industry surveys.

In the second stage, data on the international listed self storage portfolios was collected and summarised both to enable a comparison between the literature and what is actually achieved by the international listed self storage portfolios and to show whether the guidelines are achievable in practice and therefore relevant.

The number of facilities owned by the international listed portfolios and the South African case studies were included in the data collection to identify patterns and draw conclusions from.

Having obtained two reference points by which to place the performance of the South African portfolios into context, the third stage involved the data collection and summary of the South African case studies.

Lastly, in the fourth stage, the results of the three stages were summarised into a single table, from which patterns were identified to draw conclusions from and propose a guideline for self storage expense ratios in South Africa.

It is important to note that the data presented is a digested form of actual accounting data from the various sources. The data is presented in this form in an attempt to measure performance of all the entities on a fair and equal basis, and this required standardising the original data into the form used to evaluate all the entities. The definitions used for the expense categories can be found in the literature review in section 2.3.

3.4.2 *Justification for selected expense category definitions*

This section discusses the reasoning for the composition of some of the expense categories as there are some intricate arguments behind them leading them to be defined as they are in this research. This section explains why some expenses are included or excluded in the categories and what the categories comprise.

This explanation and the definitions in section 2.3 are critical explanations and sections for interpreting the data and analysis. Data sources have different expense categories and varying financial reporting standards in different countries. Therefore, to establish a guideline, judgement was required to establish a set of categories to be used for comparison, which in turn required clear definitions of each expense category. These definitions are motivated in this section and defined in section 2.3.

Total Expense Ratio

To analyse the financial statements of the listed entities, it was necessary to define how total expenses should be calculated, because 'Same Store' and 'Consolidated expenses' must be used in different contexts depending on which performance measure is desired. Refer to section 2.3 for the definition of 'Consolidated'.

The Total Expense Ratio is a measure of the all-in expenses of a portfolio and therefore it must include all expenses of all facilities in the portfolio, i.e. those that are in lease up (i.e non-Same Store facilities) as well as mature facilities. The Total Expense Ratio is then obtained by dividing the Consolidated Total Expenses by the Consolidated EGI.

The Total Expense Ratio is therefore not equal to the Direct Operating Expense Ratio plus the Portfolio Management Expense Ratio, because the Direct Operating Expense Ratio represents only Same Store Expenses (i.e expenses excluding the leasing-up facilities). If one wanted to add the Direct Operating and Portfolio Expense Ratios together to arrive at the Total Expense Ratio, one would have to add the Consolidated Direct Operating Expense ratio, plus Consolidated Portfolio Management Expense ratio (and not Same Store Direct Operating Expense ratio plus Consolidated Portfolio Management Expense ratio).

The difference between the Consolidated Direct Operating Expense ratio and the Same Store Direct Operating Expense ratio, is that the Consolidated Direct Operating Expense ratio is higher because the revenue of leasing up facilities (which is included in denominator of the Consolidated Direct Operating Expense ratio) is lower, due to the facilities not being fully leased up yet, while the expenses (the numerator) are relatively fixed and present from day one. This results in the expenses being divided by a lower revenue.

In the case of the Same Store Direct Operating Expense ratio, only the expenses of the leased-up facilities are summed and divided by the revenue of the leased-up facilities, which is a higher revenue as there are few vacancies.

To summarise, because the Total Expense Ratio is a measure of all-in expenses of a portfolio divided by the all-in revenue, it must include expenses of facilities that are in lease up (i.e non-Same Store facilities) as well as mature (Same Store) facilities.

Direct Operating Expense Ratio

As in the case of the Total Expense Ratio, when analysing the financial statements of the listed entities, it is necessary to define how Direct Operating Expenses are calculated, because Same Store and Consolidated expenses must be used in different contexts depending on which performance measure is desired.

In the case of the Direct Operating Expense Ratio, the aim is to obtain a comparable measure of the relatively fixed Same Store Direct Operating Expenses. It is also a measure of what the portfolio's direct operating expenses would be once all the facilities in the portfolio reach a mature occupancy, i.e. are fully leased up.

The Same Store Direct Operating Expenses should therefore be divided by the Same Store Effective Gross Income to obtain the Direct Operating Expense Ratio. This is the correct way of calculating the Direct Operating Expense Ratio as another use of this ratio is to obtain a measure of typical Direct Operating Expenses of a facility or portfolio. A facility in lease-up cannot have a typical Direct Operating Expense Ratio, as the EGI will keep increasing during the lease-up phase, which will cause the relatively fixed Direct Operating Expenses to be divided by a changing number. Therefore, Same Store expenses are the correct and consistent expenses to use in calculating the Direct Operating Expense Ratio.

Portfolio Management Expense Ratios

Portfolio Management Expenses are typically found in the consolidated income statement of the company and are used to illustrate the expense ratio of managing a portfolio of a number of facilities (mature and still in lease up). This ratio will be used in the research to illustrate whether there are economies of scale, or perhaps, dis-economies of scale in self storage portfolios of various sizes.

For the Portfolio Management Expense Ratio in this guideline, which strives to compare management's efficiency in managing and growing the portfolio, it is considered a better measurement of performance if third-party management fees received are included in the

revenue. If it were possible to identify the third-party management expenses in the financial statements, third party income could be stripped out.

Third-party management expenses are, however, difficult to isolate because the same resources used to manage the portfolio's owned facilities are also employed to manage third-party self storage facilities, and this results in beneficial higher utilisation of resources. Third-party management expenses are thus not reported separately in financial statements due to the isolation difficulty. Thus, if third-party management expenses are included, third-party income should also be included to avoid penalising one management team over another which has obtained additional income from third parties, but has marginal additional expenses.

Sonne (2012) agrees with this treatment of third party management fees, as his definition of revenue follows that facility income is the Effective Gross Income, which is total revenue generated at a facility including rent revenue less vacancy, plus other income sources consisting of items such as packaging sales, insurance sales and fee income (Sonne, 2012; MiniCo, 2015).

Insurance income

Insurance income for selling insurance to tenants to insure the contents of the stored goods, is included in EGI, as it is considered to be an additional income source related to the self storage business conducted at a self storage facility, similar to the sale of packaging material which has been indicated by many self storage valuation guideline authors to be part of the capitalisable income (Sonne, 2012).

Development and acquisition expenses

Many companies that report their accounting results in accordance with the International Financial Reporting Standards (IFRS) choose to capitalise their development and acquisition expenses on the balance sheet rather than reflect it on the income statement.

US Generally Accepted Accounting Principles (US GAAP) financial accounting standards only allow development and acquisition costs to be capitalised once the investment decision has been made and definite use of the investment can be expected (PWC, 2015). This implies that development and acquisition expenses lie on the income statement until the investment decision has been made and definite use of the investment can be proven or reasonably expected.

For the sake of the guideline, therefore, all shown development and acquisition expenses will be excluded or removed from Portfolio Management Expenses to make the evaluation fair in

comparison to IFRS compliant companies who have capitalised these costs on the balance sheet and do not reflect them on the income statement.

3.5 Methodology limitations

It is a limitation that smaller portfolios have not been used in the international research data. This was due to limited data availability. Data was not available from listed self storage portfolios that matched the similarity criteria with fewer than 80 facilities. Some listed self storage portfolios have fewer than 80 facilities, for example Lok n Store with 27 facilities (Lok n Store, 2015), but it was difficult to obtain the data from its financial statements to correctly reflect its expenses in the categories selected and according to the definitions used in this research.

Another limitation of the chosen international samples was that only listed portfolios were analysed because of the data availability of listed portfolios versus that of privately owned portfolios. Considering that 80% of the market is privately owned, there is therefore significant scope to improve this research should private data be available. Obtaining data from the large private share of the market is, however, not likely.

Valuation literature guidelines mostly refer to expense ratios of single-owned facilities and when they indicate Portfolio Management Expenses, it refers to third party management fees, i.e. when a single facility owner pays a professional self storage management company or portfolio manager to manage the facility on its behalf. Therefore, the guideline literature is good for use in a guideline of direct facility operating expenses, but it is not accurate for use in establishing a guideline for Portfolio Management Expenses or Total Expense Ratios.

3.6 Ethical considerations

The ethical considerations were firstly to protect the anonymity of the South African case study portfolios and secondly, to represent their data in an equal and fair manner.

Thirdly, it was considered an ethical consideration to process, standardise and display the financial data of the listed self storage portfolios differently to how it is presented in their published financial statements. This was addressed by stating that the data is not presented directly as in the financial statements. Where necessary, it has been standardised according to the definitions as given in section 2.3. Where data has been presented differently to financial statements, it has been noted in this research.

3.7 Conclusion

This chapter discussed the methodology of how data was collected and analysed.

Initially, it justified the methodology and then explained the research procedures followed. The chapter then closed with a discussion on the limitations of the methodology and an outline of the ethical considerations.

The methodology was justified by explaining the reasoning behind the choice of data sources and the reason for defining some expense categories as they are. Data sources were shown to be from sufficiently similar markets to that of South Africa.

The four stages of the methodology were explained: how the data was collected in the first three stages and that the last stage presents a data summary and analysis. The data summary summarises the data from the guidelines in the literature review, the international listed self storage portfolios and the South African case studies into tables. The analysis then performs a comparison of the data in the summary table and analyses it to arrive at an expense ratio guideline for South African self storage portfolios.

Chapter 4 Data collection and analysis

4.1 Introduction

This chapter carries out the research in the manner outlined in Chapter 3. It covers the last three stages of the four stages described in the methodology.

Briefly, the first stage, the literature review, collected data from valuation guidelines and annual industry surveys. The second stage collected data from the international listed self storage portfolios. The third stage collected data from the South African case studies and the fourth and final stage summarises the three data sources, identifies patterns in the data and draws conclusions for a guideline for self storage expense ratios in South Africa.

The execution of stages two to four below is preceded by a description of the data subjects of stage two and three to provide more context when the conclusions are drawn.

4.2 Description of data subjects

The context and background on the international listed self storage portfolios, stage 2, is provided below followed by a discussion of the South African case study subjects of stage 3. For a discussion on why the particular subjects were chosen, refer to section 3.3.1 above.

4.2.1 International listed self storage REITs

Public Storage (US)

As mentioned in Chapter 1, Public Storage REIT (Public Storage (2014)) is the largest self storage REIT in the world and also the second largest REIT on the MSCI US REIT Index of 2015 in terms of market capitalisation, with a market capitalisation of US\$35.3 billion on the New York Stock Exchange (MSCI, 2015). In 2014, Public Storage (2014) had 2,443 self storage facilities under management. Public storage is therefore chosen as a meaningful data point that will represent the expense ratios of a large self storage portfolio.

Extra Space (US)

Extra Space Storage REIT (ExtraSpace), owned and managed 1,029 self storage facilities amounting to over 7 million square metres of rentable area and 680,000 self storage units at the end of 2013. They are the second largest owner and/or operator and the largest self storage management company in the US and are listed on the New York Stock Exchange as a REIT (Extra Space Storage 2013).

CubeSmart (US)

CubeSmart owned and operated 595 facilities in the US at the end of 2013 of which 421 is owned and the balance managed under third-party management agreements on behalf of other owners. CubeSmart is listed on the New York Stock Exchange as a REIT (CubeSmart, 2014).

National Storage (Aus)

National Storage REIT listed in December 2013 on the Australian Securities Exchange. It owns and operates 87 facilities spread across Australia and New Zealand (National Storage REIT, 2015). It was the first listed self storage REIT in Australasia.

Big Yellow (UK)

Big Yellow Group PLC (Big Yellow) listed on the London Stock Exchange in 2002 (Big Yellow, 2016). In 2015 it owned and operated 84 facilities in the UK with a focus on London and the South East (Big Yellow, 2015).

4.2.2 Case Studies: South African self storage portfolios

Three private self storage portfolios

The three private self storage portfolios were offered anonymity as terms for them to share their expense ratios for the purpose of this research. Individual mention of each portfolio's characteristics therefore cannot be given as it would compromise their anonymity.

It can however be disclosed that these three portfolios individually own and professionally manage between 4 and 25 facilities each in the major cities of South Africa. Some own only grade A facilities and some own a mixture of grade A, B and C facilities. All three have facilities of similar size in terms of the leasable floor area.

Stor-Age Property REIT

The fourth South African Case study is Stor-Age Property REIT. It owned and managed 24 facilities in major cities in South Africa when it listed on the JSE in November 2015. It has a total rentable area of 181,500 square metres (Stor-Age, 2015).

4.3 Data collection

This section explains how the methodology procedures were followed for collecting data from each of the two data sources, being the international listed self storage portfolios and South African case studies.

4.3.1 Methodology Stage 2: procedures followed for the listed portfolio analysis

Public Storage (US)

The Same Store expenses and revenue were obtained from its report on Selected Operating Data for its 1,982 Same Store facilities as reported in its 2014 Annual Report. Its Direct Operating Expense Ratio comes to 27.1%. Public Storage, however, has extensive, detailed reporting, which shows that a portion of its overhead costs have been allocated back to the Same Store expenses to account for shared general corporate functions carried out at head office in service of the facilities. This portion of overhead expenses is then attributed back to Same Store expenses in relation to the extent that efforts are devoted to self storage operations. This includes overhead expenses such as data processing carried out by the corporate office, human resources, operational accounting and finance, marketing, and costs of senior executives other than the CEO and CFO (Public Storage, 2014). The reallocated expense adds 2.1% points to the total Direct Operating Expense Ratio. If this is omitted, Public Storage has a Same Store Direct Operating Expense Ratio of 25.1%. As some other comparable companies in this guideline have less detailed financial statements compared to Public Storage, for the purpose of establishing a guideline, it was considered more consistent to leave the reallocated Portfolio Management Expenses in the Same Store expenses where Public Storage reports it.

The Total Expense Ratio was obtained by dividing the total Consolidated Expenses by the Consolidated Turnover as reported in the 2014 Annual Report. Turnover was calculated by adding the self storage revenue and ancillary operations, but subtracting the commercial income attributed to Public Storage Business Parks, which is a non-self storage related business unit within Public Storage. This was done to keep the guideline comparison relevant to self storage performance only. Ancillary income consists of tenant reinsurance income and third-party management income, which have been included in revenue for the reasons discussed in section 3.4.2.

General and Administrative Expenses were categorised as portfolio expenses as these refer to corporate expenses, the efforts of which are not directly devoted to a specific self storage facility, but rather refer to overhead expenses.

Extra Space (US)

Extra Space does not allow visitors to its website from outside the US, although it is possible to obtain historic content from its website. The unaudited financial statements for the year ended 31 December 2013 were the most recent financial data available and so were used in this research. It is noted on the summary table, Table 15 in Section 4.4.2, that these percentages refer to unaudited financial statements.

Same Store expenses and revenue are presented separately for its 344 Same Store facilities and these are useful in determining comparable Direct Operating Expense Ratios. The Direct Operating Expense Ratio comes to 30.2% and Total Expense Ratio to 39.0%. A debateable addition to the Portfolio Management Expense ratio of 10.4% is the development and acquisition cost of 0.49%. As discussed in section 3.4.2 above, this has been removed from its Portfolio Management Expense to get to 10.4%, as development and acquisition expenses are excluded from Portfolio Management Expenses for the purpose of this guideline.

Cube Smart (US)

Cube Smart's Direct Operating Expense Ratio for Same Store facilities is calculated from the section on Same Store facilities as 31.5%. The debateable addition to the portfolio expenses of 7.5%, namely, the development and acquisition cost of 1.7%, has again been removed from Portfolio Management Expenses to get to 7.5%, to reverse the US GAAP effect and make the guideline comparison consistent.

National Storage (Australasia)

Same Store results were not given in the financial statements, so the consolidated statements were used, which results in slightly higher expense ratios as some facilities have not reached their full potential revenue because they are still in lease-up. As National Storage (2015) is the only available data source for the Australian market, it is considered an acceptable deviation in the guideline comparison method considering the benefit of including a third market in the guideline.

The Direct Operating Expense Ratio is calculated to be 38.5%, and the Portfolio Management Expense Ratio is calculated to be only 2.3%. The Total Expense Ratio is 40.8% and is considered to be accurate. It is suspected that allocation of direct versus portfolio expense categories caused the Portfolio Management Expense Ratio to be so low, but the Total Expense Ratio is considered reliable. For this reason, only the Total Expense Ratio has been shown on the summary tables in the sections below.

Big Yellow (UK)

Big Yellow provides a breakdown of financial performance for mature, established and developing facilities. It has been assumed that mature facilities can be regarded to equate to Same Store facilities for use in the Direct Operating Expense Ratio. The Direct Operating Expense Ratio is 30% in the case of Big Yellow's mature facilities. The Total and Portfolio Management Expense Ratios were obtained from its consolidated statement of comprehensive income as 42.5% and 10.1% respectively.

4.3.2 Methodology Stage 3: Procedures followed for the case studies of South African self storage portfolios

Private portfolio case studies

Managing directors (MDs) of the private portfolios were contacted, and the aim and benefits of the research explained to them. They were also assured that their anonymity would be maintained. Data forms, as shown in Annexure A, were sent to each MD and it was explained to them how the form works and what each expense category comprises. Expense data was requested as a percentage of EGI to ensure limited disclosure of private financial information. It is therefore mentioned that case study respondents filled in the forms and therefore it is not based on audited accounting data, but such data would not be easily disclosed due to the privacy of the information. These MDs were also consulted after the results were summarised to ensure they were comfortable with the manner in which the data is presented.

Listed portfolio case study

The fourth case study was a South African self storage portfolio that is listed on the JSE, namely Stor-Age Property REIT. This portfolio subsequently published its financial results as at the end of March 2016 for the 4.5 months since its listing in November 2015. These financial statements could therefore be used to obtain expense ratio data. As the listed portfolio consists of only leased-up (sufficient dividend yielding) facilities, the entire portfolio is considered to be 'Same Store' results, which implies that its Portfolio Management Expense and Total Expense Ratios are slightly underestimated relative to the other three case studies who also have leasing up facilities (i.e. lower revenue) that increase their Portfolio Management Expense Ratio and their Total Expense Ratio.

The Portfolio Management Expense is also not directly comparable to the other case studies or listed portfolios, as this listed case study contains income received for management, development and acquisition activities on behalf of a related company which owns its leasing up facilities. As development and acquisition costs have been excluded in the international

listed portfolio data, development and acquisition income needs to be excluded for this case study portfolio to establish a consistent guideline. The management fee is also unclear as it is a management fee received from a related company and not a third party as in the case of Extra Space for example. Therefore, when excluding the management, development and acquisition fee for reasons mentioned above, the Portfolio Management Expense Ratio amounts to 15.9% and the Total Expense Ratio 38.8%.

It should be pointed out that there may be some error as the financial data does not represent data of a 12-month period as for the other case studies and international listed portfolios in the guideline. Therefore, as a check, the forecasted financial year results of the listed case study were compared to its pre-listing prospectus to see how the forecasted results for a full year compare to the actual results of the 4.5 months. The forecasted data results in a Direct Operating Expense Ratio of 23.1% and a Portfolio Management Expense Ratio of 16%, which can be added together to obtain a Total Expense Ratio of 39.1% which is not out of line with the actual 4.5-month data ratio of 38.8%. This limitation is pointed out and more accurate ratios can be obtained when the financial results for the year ending 31 March 2017 are published. This was not included as it is beyond the time limit for this research.

4.4 Data analysis for patterns in the data in terms of the research questions

Below, the fourth and final stage of the methodology summarises the data, identifies patterns in the data and draws conclusions.

The three focus ratios, the Total, Direct Operating and Portfolio Management Expense Ratios, are discussed first in a table, and thereafter, the supplementary ratios are discussed in a separate table to allow a focus on the three ratios under scrutiny. This is followed by a short discussion on the supplementary ratios which also include tables, to illustrate conclusions made or provide a summary of the findings.

4.4.1 Stage 1: Data analysis – guideline literature review summary

Table 13 presents a summary of the expense ratio data of the three focus ratios according to the guideline literature review, which was obtained in carrying out stage 1 of the methodology.

Table 13: Guideline literature and industry survey summary table

| | Total Expense Ratio (Consolidated) | Direct Expense Ratio (Same Store) | Portfolio Expense Ratio (Consolidated) |
|-------------------------------|--|---|--|
| Guideline literature** | | | |
| US Expense Guidebook | 40% | 38% | 5.7% |
| Sonne – Appraisal Institute | 37% | 32% | 5.0% |
| 2015 UK SSA Survey* | | 38% | 3.8% |
| Correl – Appraisal Institute | 37% | 32% | 5.0% |
| Almanac – SSA of Australia | 51% | 36% | 15.1% |
| Rode – SS Properties in RSA | 45% | 34% | 10.3% |
| Average | 42% | 35% | 7.5% |

* ratios only relative to an assumed total expense ratio, refer to section 2.3.1

** total expense ratios of these guidelines generally refer to direct expenses plus third-party management fee instead of portfolio management expenses. Portfolio expense ratio percentages also then refer to a typical third-party management fee in the guideline

As mentioned in the literature review, the guideline literature is useful for providing an indication of most expense ratios, but because the data in these guidelines is mostly based on single facilities and not a portfolio of facilities, it is not useful for obtaining an indication of the Total and Portfolio Management Expense Ratio of a portfolio.

As shown in Table 13 above, the Total Expense Ratio amounts to an average of 42% with a high of 51% and low of 37%. The high of 51% was from the Self Storage Almanac of Australia – it was also higher than this almanac’s 10-year average high range number of 47.4%.

Direct Operating Expenses come to an average of 35% with little variance, which is considered to be high.

Portfolio Management Expenses average to 7.5%, which typically represents a third-party management expense, but it ranges between 3.8% and 15.1%.

Table 14, which continues to summarise the data of the literature, reveals from the literature that real estate taxes range between 6% and 10%. Not many give an indication of what facilities should spend on online marketing beyond the UK self storage survey’s 3.8%. This is, however, an approximated figure by the researcher based on an assumed percentage of the Total Expense Ratio as explained in the section on the Total Expense Ratio of the UK Self Storage Survey in section 2.3.

Table 14: Guideline literature and industry survey summary table (continued)

| Guideline literature** | On-Site Management Fees | Real Estate Taxes (Same Store) | Advertising Total (Same Store) | Online Marketing (Same Store) | Repairs, Maintenance and Cleaning | Property/ Liability Insurance (Same Store) | Utilities (Same Store) |
|-------------------------------|--------------------------------|---------------------------------------|---------------------------------------|--------------------------------------|--|---|-------------------------------|
| US Expense Guidebook | 9% | 10% | 2,6% | | 3,0% | 1,4% | 3,0% |
| Sonne – Appraisal Institute | 10% | 10% | 1,9% | | 1,8% | 1,2% | 3,7% |
| 2015 UK SSA Survey* | 13% | 7% | 6,1% | 3,8% | 3,0% | 1,8% | 2,5% |
| Correl – Appraisal Institute | 11% | 9% | 2,0% | | 2,0% | 1,0% | 3,0% |
| Almanac – SSA of Australia | 18% | 5,9% | 5,6% | | 2,9% | | |
| Rode – SS Properties in RSA | 13% | 9% | 1,5% | | 3,6% | 1,5% | 2,3% |
| Average | 12% | 8,4% | 3,3% | 3,8% | 2,7% | 1,4% | 2,9% |

* ratios only relative to an assumed total expense ratio, refer to section 2.3.1

4.4.2 Stage 2: Data analysis – international listed self storage REIT financial statements analysis

In Table 14 above, one can see that Repairs and Maintenance expenses range from 1.8% to 3.6% according to the literature, with an average of 2.7%. On-site management fees average to 12%, property and liability insurance average to 1.4% and utilities 2.9%.

Table 15 presents a summary of the expense ratio data according to the international listed self storage portfolios, which was obtained by carrying out stage 2 of the methodology.

The international listed self storage portfolios are useful in establishing a guideline of expense ratios for large self storage portfolios as this is typically where the data originates.

Table 15: International listed self storage portfolios summary table

| International Listed Portfolios | Total Expense Ratio (Consolidated) | Direct Expense Ratio (Same Store) | Portfolio Expense Ratio (Consolidated) |
|--|---|--|---|
| Public Storage 2014 (US)* | 31% | 27% | 2,8% |
| ExtraSpace 2013 (US) | 39% | 30% | 10,4% |
| CubeSmart 2014 (US) | 43% | 32% | 7,5% |
| National Storage 2015 (Aus) | 41% | | |
| Big Yellow 2015 (UK) | 43% | 30% | 10,1% |
| Average | 39% | 30% | 7,7% |

** only Public Storage shows allocatable direct costs, so if allocatable indirect costs are not added back to direct costs, a direct expense ratio of 25% is obtained*

Referring to Table 15 above, the Total Expense Ratio of the international listed self storage portfolios ranges from a low of 31% to a high of 43%. The average is 39%. Public Storage seems to be an outlier in terms of management efficiency due to its low Portfolio Management Expense Ratio and a low Direct Operating Expense Ratio, which enables it to achieve a Total Expense Ratio of 31%. It also manages more than double the facilities of its closest competitor and significant multiples more than the other portfolios in this research. This indicates it has obtained significant economies of scale. It is, however, interesting to note the large proportion of Public Storage's Same Store, i.e. lease up facilities in relation to their leasing up facilities, compared to the other listed comparable portfolios who has a larger proportion of facilities in lease up, which could also contribute to a slightly overstated appearance of superior efficiency in favour of Public Storage, when considering the Total and Portfolio Management Expense Ratio.

The Total Expense Ratio of the international listed portfolios seem to indicate that in reality, portfolios are slightly more efficient than valuers perceived the facilities to be in their valuation guidelines. This can be seen by comparing the average Total Expense Ratio of the international listed portfolios of 39% in Table 15 above to that of the literature of 42% found in Table 13 above.

The Direct Operating Expense ratio averages to 30% for the international listed portfolios, only varying by 5% from 27% to 32%. The Direct Operating Expense Ratios are 5% lower than the guidelines of the valuers of 35%.

The other expense ratios are in line with the valuers' guidelines except for advertising, which averaged to 1.6% compared to the valuers' 3.3%. See Table 16 below.

Table 16: International listed self storage portfolios summary table (continued)

| International Listed Portfolios | On-Site Management Fees | Real Estate Taxes (Same Store) | Advertising Total (Same Store) | Online Marketing (Same Store) | Repairs, Maintenance and Cleaning | Property/ Liability Insurance (Same Store) | Utilities (Same Store) |
|--|--------------------------------|---------------------------------------|---------------------------------------|--------------------------------------|--|---|-------------------------------|
| Public Storage 2014 (US) | | 9% | 1,5% | | 2,4% | | 2,1% |
| ExtraSpace 2013 (US) | 8,1% | 9% | 1,5% | | 2,6% | 0,9% | 3,4% |
| CubeSmart 2014 (US) | | | 2,4% | | | | |
| National Storage 2015 (Aus) | | 6% | 1,2% | | 1,2% | 1,5% | 2,0% |
| Big Yellow 2015 (UK) | | | | | | | |
| Average | 8,1% | 8,1% | 1,6% | | 2,1% | 1,2% | 2,5% |

4.4.3 Stage 3: Data analysis – case studies of South African self storage portfolios in a global context

From Table 17, the South African case studies indicate somewhat higher expense ratios on average. They also seem to be in two groups, the one pair (A and B) having lower expense ratios across most categories than the other pair (C and D).

Table 17: South African case studies summary table

| RSA Case Studies | Total Expense Ratio (Consolidated) | Direct Expense Ratio (Same Store) | Portfolio Expense Ratio (Consolidated) |
|-------------------------|---|--|---|
| RSA Source A | 37% | 26% | 11,3% |
| RSA Source B | 39% | 23% | 15,9% |
| RSA Source C | 52% | 30% | 10,7% |
| RSA Source D | 46% | 34% | 12,7% |
| Average | 44% | 28% | 12,7% |

The Total Expense Ratio averaged to 44%, ranging widely from 37% to 52%. The case study average Total Expense Ratio of 44%, is 2% points higher than the valuation guideline average in Table 13 and 4% points higher than the international listed portfolio average in Table 15..

Considering the wide range of the Total Expense Ratios among the case studies in the table above, it is important to note that Source C, at the time of research, had a large proportion of its facilities in lease up and therefore a high Total Expense Ratio was reported because of, as previously mentioned, the fixed nature of expenses being divided by a small EGI, as new facilities have not reached full occupancy during lease up.

The Direct Operating Expense Ratio averaged to 28%, but varied between 23% and 34%. The average here is lower than the international listed average by 2% points and the literature guidelines by 7% points.

The Portfolio Management Expense Ratio averages 13.5%, varying from 11.3% to 15.9%. The Portfolio Management Expense Ratio of 12.7% is much higher than the international listed portfolios of 8.6%. This can be expected due to the Direct Operating Expense Ratio of the case studies being so low, i.e. many expenses are therefore expended by head office rather than at the facility.

Considering the supplementary ratios in Table 18 below, the South African portfolios seem to pay lower real estate taxes – an average 6.3% compared to the international portfolios’ average of 8.1% and the literature guidelines of 8.4%. Utility expenses also seem lower, but advertising expenses are on average 3.1% compared to the 1.6% average of the international portfolios. It is understood that real estate taxes in South Africa have risen significantly since this research was conducted, so the lower tax ratio might be less relevant if this research is repeated.

Table 18: South African case studies summary table (continued)

| RSA Case Studies | On-Site Management Fees | Real Estate Taxes (Same Store) | Advertising Total (Same Store) | Online Marketing (Same Store) | Repairs, Maintenance and Cleaning | Property/ Liability Insurance (Same Store) | Utilities (Same Store) |
|-------------------------|--------------------------------|---------------------------------------|---------------------------------------|--------------------------------------|--|---|-------------------------------|
| RSA Source A | 9,7% | 5% | 2,3% | | 2,2% | 1,1% | 2,2% |
| RSA Source B | | | | | | | |
| RSA Source C | 4,5% | 10% | 1,3+% | | 6,1% | 1,0% | 1,6% |
| RSA Source D | 5,3% | 4% | 4,0% | 0,8% | 0,4% | 0,8% | 1,1% |
| Average | 6,5% | 6,3% | 3,1% | | 2,9% | 1,0% | 1,6% |

4.4.4 Stage 4: Patterns in the data – expense ratios relative to the number of facilities in a portfolio

In the next section, the relationship between the expense ratios and number of facilities is explored in the data of the international listed portfolios and the case studies. The three most critical expense ratios are analysed, namely, Total Expenses, Direct Operating Expenses and Portfolio Management Expenses.

When considering the number of facilities in a portfolio and its corresponding expense ratios, interesting patterns of data come to the fore. These could be attributed to the economy of scale effect that many portfolios refer to in their reports. Although there are many fixed operating expenses in self storage (Wilson, 1987; Blackwell, 2009b), there are some economies of scale available in Portfolio Management Expenses related to marketing, ICT and property development. Larger portfolios, with more facilities to spread the management cost over, can also achieve more efficient management of Direct Operating Expenses, because they can afford more expensive head office managers and resources, which can be applied in optimising operations.

Table 19 on page 63 below shows a condensed data summary table of the three expense ratios that are the focus of this research, namely the Total, Direct Operating and Portfolio Management Expense Ratios. The summary table is divided into three sections as per the three data sources, namely, guideline literature, international listed portfolios, and South African (RSA) case studies. Column headings represent the three focus expense ratios with their definitions corresponding to those given in Section 2.3.

The last two columns on the right-hand side of the table contain data on the number of facilities owned by each data source. The literature guidelines do not have such a parameter, as it is not based on data of portfolios, but rather on the view of valuers on the expenses of a single facility or the results from industry surveys on the expenses of a facility.

The case studies would be identifiable if the number of facilities of each case study were shown, therefore, to preserve anonymity, this data has not been provided for the case studies; the listed portfolios' number of facilities is given.

Table 19 has two columns for the number of facilities: the first column refers to the number of Same Store facilities owned, which is used to compare Same Store Expense Ratios (Direct Operating Expense Ratio, On-Site Management Fees, Real Estate Taxes and Insurance); the second column refers to the number of facilities under management, which is used to compare Consolidated Expense Ratios, i.e. the Portfolio Management and Total Expense Ratios.

A comprehensive summary table is presented in Table 20 to provide a summary of all expense ratio data gathered from the various sources discussed above. This can be used as a quick reference when more detailed information on expenses making up the Direct Operating Expense Ratio is required.

A discussion of the patterns in the data identified from Table 19 and Table 20 follows the tables, with attention on the relationship between the three focus ratios and the number of facilities.

Table 19: Condensed expense ratio summary table

| | Total Expense Ratio (Consolidated) | Direct Expense Ratio (Same Store) | Portfolio Expense Ratio (Consolidated) | No of Same Store Facilities | Total Facilities Under Management |
|---|--|---|--|------------------------------------|--|
| Guideline Literature** | | | | | |
| US Expense Guidebook | 40% | 38% | 5,7% | | |
| Sonne - Appraisal Institute | 37% | 32% | 5,0% | | |
| 2015 UK SSA Survey* | | 38% | 3,8% | | |
| Correl - Appraisal Institute | 37% | 32% | 5,0% | | |
| Almanac - SSA of Australia | 51% | 36% | 15,1% | | |
| Rode - SS Properties in RSA | 45% | 34% | 10,3% | | |
| Average | 42% | 35% | 7,5% | | |
| *ratios only relative to an assumed total expense ratio, refer to section 2.3.1 | | | | | |
| ** total expense ratios of these guidelines generally refer to direct expenses plus third party management fee's instead of portfolio management expenses. Portfolio expense ratio percentages also then refers to a typical third party management fee in the guideline data | | | | | |
| International Listed Portfolios | | | | | |
| Public Storage 2014 (US)* | 31% | 27% | 2,8% | 1982 | 2443 |
| ExtraSpace 2013 (US) | 39% | 30% | 10,4% | 344 | 1029 |
| CubeSmart 2014 (US) | 43% | 32% | 7,5% | 346 | 595 |
| National Storage 2015 (Aus) | 41% | | | | 87 |
| Big Yellow 2015 (UK) | 43% | 30% | 10,1% | 50 | 84 |
| Average | 39% | 30% | 7,7% | | |
| * only Public Storage shows allocatable direct costs, so if allocatable indirect costs are not added back to direct costs, a direct expense ratio of 25% is obtained | | | | | |
| RSA Case Studies | | | | | |
| RSA Source A | 37% | 26% | 11,3% | | |
| RSA Source B | 39% | 23% | 15,9% | | |
| RSA Source C | 52% | 30% | 10,7% | | |
| RSA Source D | 46% | 34% | 12,7% | | |
| Average | 44% | 28% | 12,7% | | |
| * portfolio expenses are allocated back in financial statements, not all expenses are allocatable to a property directly for valuation purposes. One also need to exclude governance costs for valuation purposes | | | | | |
| † excludes online marketing | | | | | |

Table 20: Comprehensive expense ratio summary table

| | Total Expense Ratio (Consolidated) | Direct Expense Ratio (Same Store) | Portfolio Expense Ratio (Consolidated) | On-Site Management Fees (Same Store) | Real Estate Taxes (Same Store) | Advertising Total (Same Store) | Online Marketing (Same Store) | Repairs, Maintenance and Cleaning (Same Store) | Property/Liability Insurance (Same Store) | Utilities (Same Store) | No of Same Store Facilities | Total Facilities Under Management |
|---|---------------------------------------|--------------------------------------|---|---|-----------------------------------|-----------------------------------|----------------------------------|---|--|---------------------------|-----------------------------|-----------------------------------|
| Guideline Literature** | | | | | | | | | | | | |
| US Expense Guidebook | 40% | 38% | 5,7% | 9% | 10% | 2,6% | | 3,0% | 1,4% | 3,0% | | |
| Sonne - Appraisal Institute | 37% | 32% | 5,0% | 10% | 10% | 1,9% | | 1,8% | 1,2% | 3,7% | | |
| 2015 UK SSA Survey* | | 38% | 3,8% | 13% | 7% | 6,1% | 3,8% | 3,0% | 1,8% | 2,5% | | |
| Correl - Appraisal Institute | 37% | 32% | 5,0% | 11% | 9% | 2,0% | | 2,0% | 1,0% | 3,0% | | |
| Almanac - SSA of Australia | 51% | 36% | 15,1% | 18% | 5,9% | 5,6% | | 2,9% | | | | |
| Rode - SS Properties in RSA | 45% | 34% | 10,3% | 13% | 9% | 1,5% | | 3,6% | 1,5% | 2,3% | | |
| Average | 42% | 35% | 7,5% | 12% | 8,4% | 3,3% | 3,8% | 2,7% | 1,4% | 2,9% | | |
| * ratios only relative to an assumed total expense ratio, refer to section 2.3.1 | | | | | | | | | | | | |
| ** total expense ratios of these guidelines generally refer to direct expenses plus third party management fee's instead of portfolio management expenses. Portfolio expense ratio percentages also then refers to a typical third party management fee in the guideline data | | | | | | | | | | | | |
| International Listed Portfolios | | | | | | | | | | | | |
| Public Storage 2014 (US)* | 31% | 27% | 2,8% | | 9% | 1,5% | | 2,4% | | 2,1% | 1982 | 2443 |
| ExtraSpace 2013 (US) | 39% | 30% | 10,4% | 8,1% | 9% | 1,5% | | 2,6% | 0,9% | 3,4% | 344 | 1029 |
| CubeSmart 2014 (US) | 43% | 32% | 7,5% | | | 2,4% | | | | | 346 | 595 |
| National Storage 2015 (Aus) | 41% | | | | 6% | 1,2% | | 1,2% | 1,5% | 2,0% | | 87 |
| Big Yellow 2015 (UK) | 43% | 30% | 10,1% | | | | | | | | 50 | 84 |
| Average | 39% | 30% | 7,7% | 8,1% | 8,1% | 1,6% | | 2,1% | 1,2% | 2,5% | | |
| * only Public Storage shows allocatable direct costs, so if allocatable indirect costs are not added back to direct costs, a direct expense ratio of 25% is obtained | | | | | | | | | | | | |
| RSA Case Studies | | | | | | | | | | | | |
| RSA Source A | 37% | 26% | 11,3% | 9,7% | 5% | 2,3% | | 2,2% | 1,1% | 2,2% | | |
| RSA Source B | 39% | 23% | 15,9% | | | | | | | | | |
| RSA Source C | 52% | 30% | 10,7% | 4,5% | 10% | 1,3+ | | 6,1% | 1,0% | 1,6% | | |
| RSA Source D | 46% | 34% | 12,7% | 13,0% | 4% | 4,0% | 0,8% | 0,4% | 0,8% | 1,1% | | |
| Average | 44% | 28% | 12,7% | 9,1% | 6,3% | 3,1% | | 2,9% | 1,0% | 1,6% | | |
| * portfolio expenses are allocated back in financial statements, not all expenses are allocatable to a property directly for valuation purposes. One also need to exclude governance costs for valuation purposes | | | | | | | | | | | | |
| + excludes online marketing | | | | | | | | | | | | |

Total Expense Ratio

Figure 7 shows a graph of the Total Expense Ratio plotted against the number of facilities under management. It indicates that smaller portfolios have widely varying total expenses, but as the number of facilities increases, a downward sloping trendline can be observed. This may be attributed to some economies of scale, for example, that is achieved by Public Storage, the data point on the far right, with just below 2,500 facilities under management.

A logarithmic regression line is the most fitting to this data with an R^2 value of 0.53, which indicates that 53% of the variability in the Total Expense Ratio is explained by the number of facilities the portfolio comprises.

As mentioned in Chapter 2, the R^2 value is an indication of how much of the variation in the data is explained by the model, put in other words, how well the regression line fits to the data plotted (Institute for Digital Research and Education, 2011).

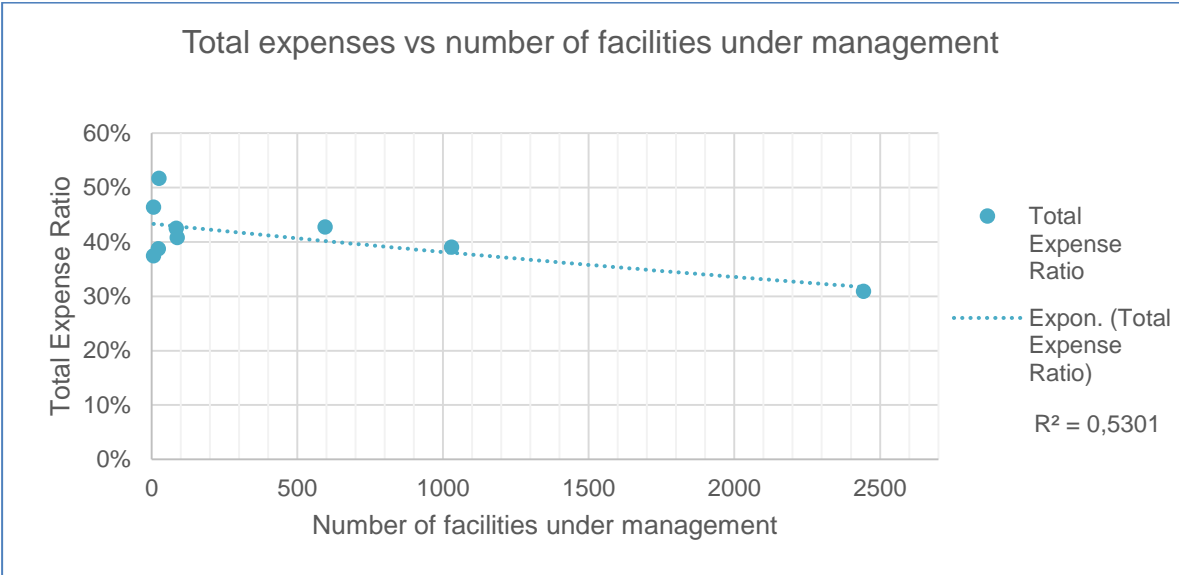


Figure 7: Total Expense Ratio vs number of facilities under management (linear scale)

The same data as in Figure 7 above has been plotted in Figure 8 below, but on a logarithmic scale. This improves the measure of detail that can be read off the data of the small portfolios and gives another perspective on the change in Total Expense Ratio as the number of facilities increases. From Figure 8, it can be seen that the Total Expense Ratio starts to decrease at approximately 100 facilities under management and quite sharply at 400 facilities under management.

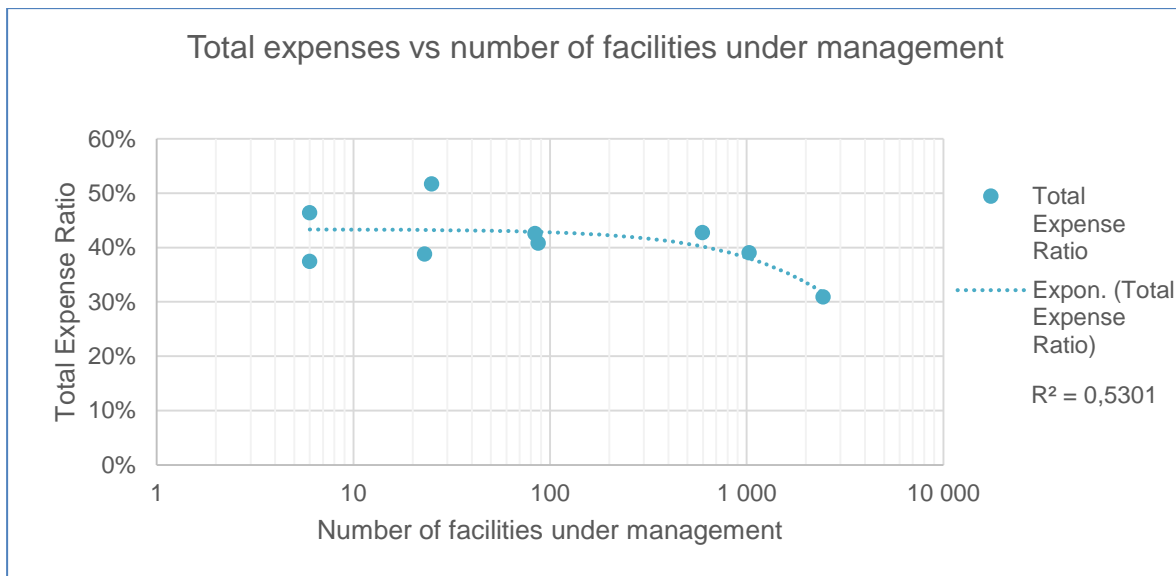


Figure 8: Total Expense Ratio vs number of facilities under management (log scale)

Direct Operating Expense Ratio

Figure 9 shows a graph of the Direct Operating Expense Ratio against the number of Same Store facilities in each portfolio. Again, as with the Total Expense Ratio, the smaller portfolios have varying expense ratios, but here, a flat sloping trendline is observed.

It is interesting to note that some smaller portfolios managed to outperform larger portfolios. However, if Public Storage's reallocated overhead is removed from its Direct Operating Expense Ratio (decreasing then from 27% to 25.1%), Public Storage almost matches the lowest Direct Operating Expense Ratio's data point of case study B's 23%.

The conclusion from this graph is that Direct Operating Expenses can be minimised to some extent, but they do not decrease as much as total expenses do with an increasing number of facilities owned. A flat logarithmic regression line is found to be most fitting to this data with an R^2 value of 0.02, indicating that even though it is the most fitting type of regression line, it still only explains 2% of the variability of Direct Operating Expenses, put in another way only 2% of the variability in the Total Expense Ratio is explained by the number of facilities a portfolio comprises. One can therefore conclude that the number of facilities owned in a portfolio has an insignificant effect on the Direct Operating Expense ratio.

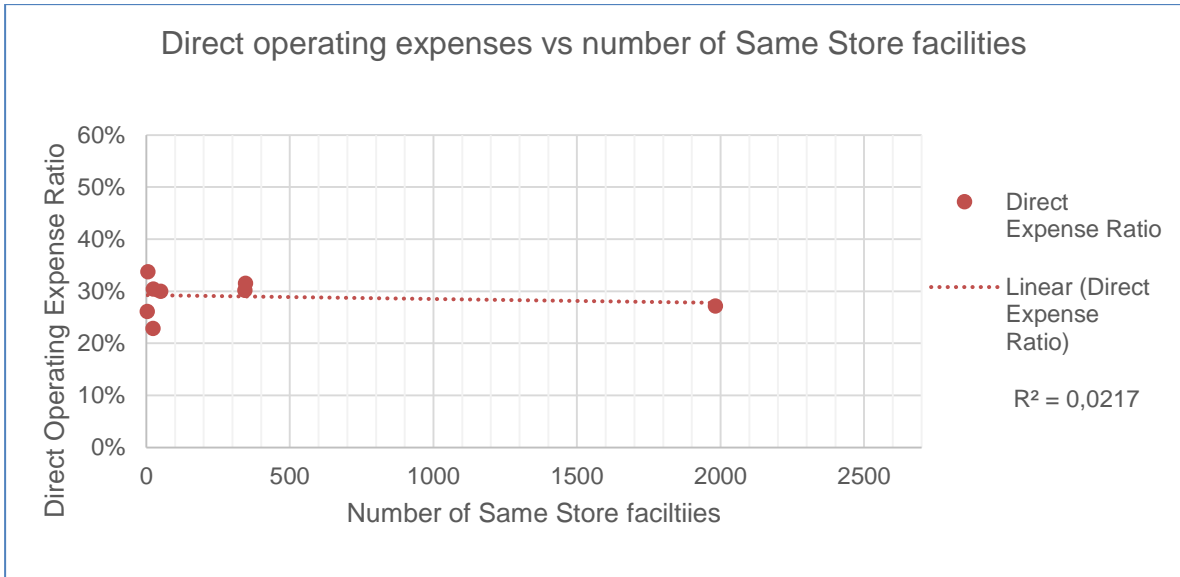


Figure 9: Direct Operating Expense Ratio vs number of Same Store facilities (linear scale)

The same data as in Figure 9 above has been plotted in Figure 10 below, but on a logarithmic scale. This improves the measure of detail that can be read off the data of the small portfolios and gives another perspective on the change in Direct Operating Expense Ratio as the number of facilities increases. No significant additional trends were revealed.

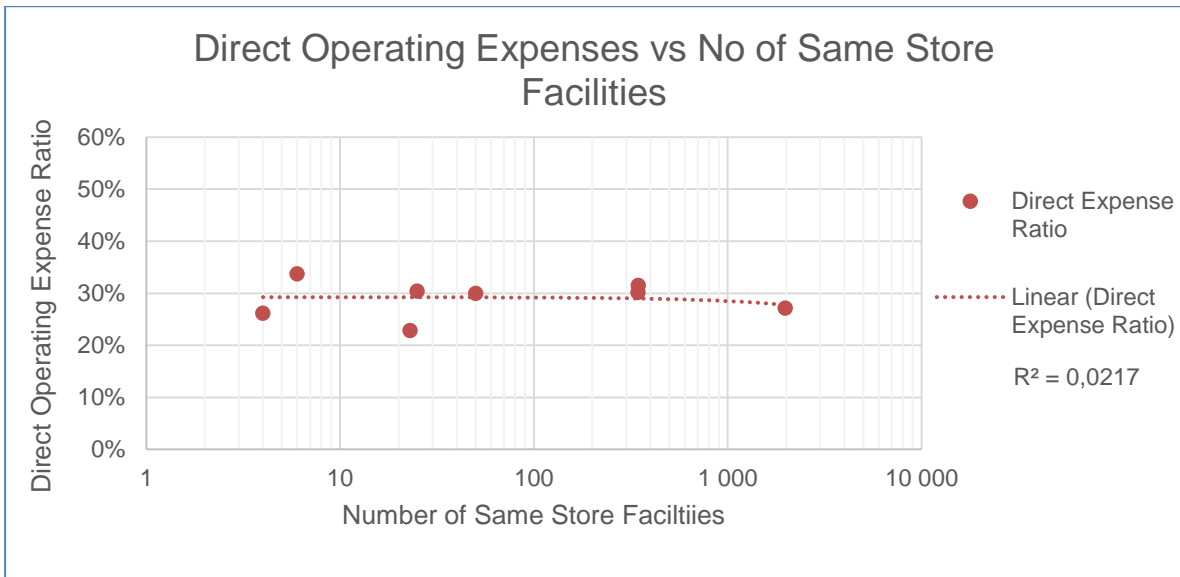


Figure 10: Direct Operating Expense Ratio vs number of same store facilities (log scale)

Portfolio Management Expense Ratio

Figure 11 shows a graph of the Total Expense Ratio against the number of facilities under management. Again, smaller portfolios have widely varying Portfolio Management Expenses, but now considering Portfolio Management Expenses, a steeply downward sloping logarithmic regression line is observed as the number of facilities under management increases. A downward sloping logarithmic regression line is found to be most fitting to this data with an R^2 value of 0.83, indicating that 83% of the variability of the Portfolio Management Expense Ratio is explained by the number of facilities a portfolio comprises. The downward sloping regression line could be attributed to the economies of scale referred to previously, which is clearly achieved mainly in Portfolio Management Expenses.

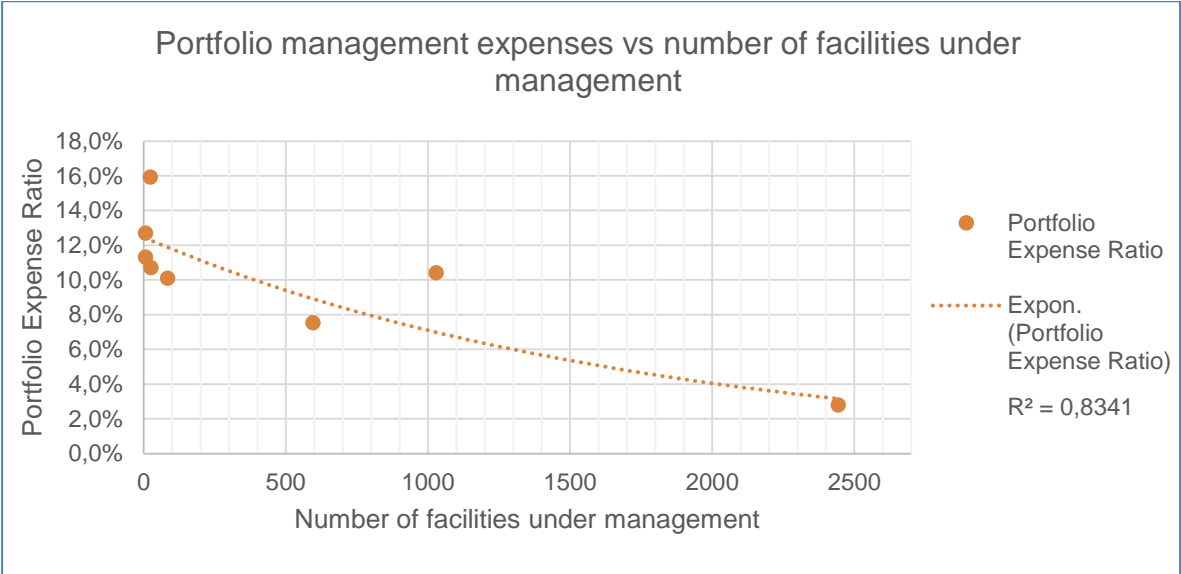


Figure 11: Portfolio Management Expense Ratio vs number of facilities under management (linear scale)

The same data as in Figure 11 above has been plotted in Figure 12 below, but on a logarithmic scale to improve the measure of detail that can be read off the data of the small portfolios and give another perspective on the change in Portfolio Management Expense Ratio as the number of facilities increases. It can again be seen that the Portfolio Management Expense ratio starts to decrease at approximately 100 facilities under management and quite sharply at 400 facilities under management.

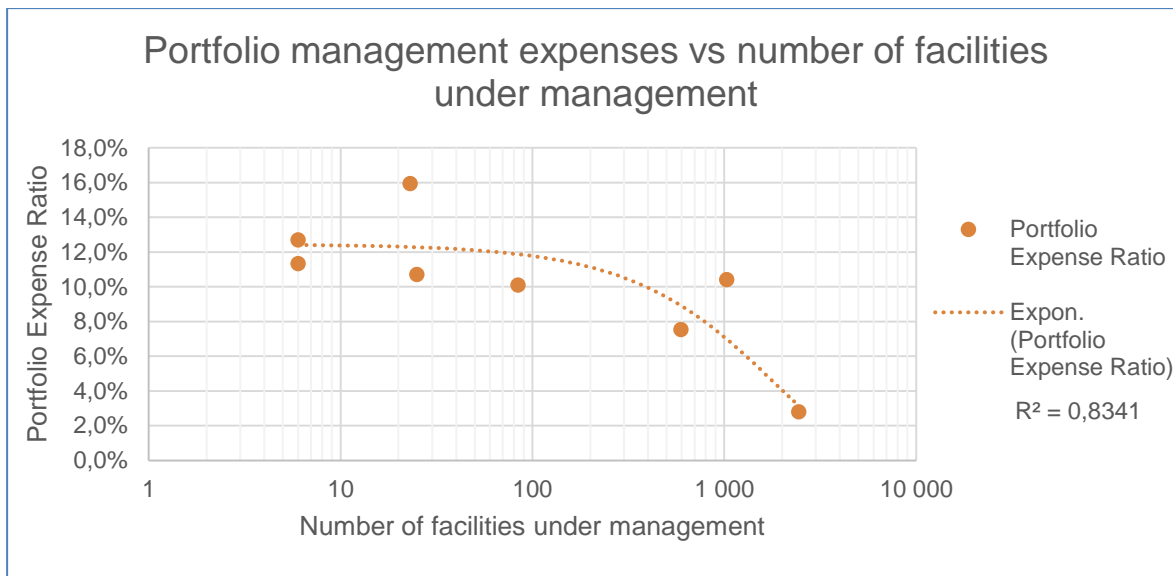


Figure 12: Portfolio Management Expense Ratio vs number of facilities under management (log scale)

4.4.5 The most reliable expense ratio

It is important to consider that even though expense category definitions can be followed closely, it is not apparent whether an expense should be categorised as a Direct Operating Expense or as a Portfolio Expense. Considering this categorisation difficulty, it can be argued that the Total Expense Ratio is the most dependable ratio to consider when comparing expense ratios across portfolios or facilities. This is because the Total Expense Ratio is the all-in expenses divided by the all-in Effective Gross Income. A limitation to the Total Expense Ratio does however remain. Two theoretically identical portfolios, with the only difference being that one comprises leasing up facilities (Leasing up Portfolio) and the other portfolio has been in existence for a longer time so all its facilities are leased up (Mature Portfolio), will have different Total Expense Ratios. The Mature portfolio will appear superior to the leased up portfolio because it has no leasing up facilities with temporary low revenues.

It can be argued, therefore, that the Direct Operating Expense Ratio is more dependable as a measure of efficient management because it excludes facilities in the portfolio that are still in lease up – i.e. only Same Store facilities. The counter argument is that the Same Store expenses are allocated according to the judgement of the portfolio manager, for whom there is no International Accounting Standard guideline, and therefore it is inconsistent and therefore not as dependable as the all-in Total Expense Ratio. It is therefore proposed that the Total Expense Ratio and the Direct Operating Expense Ratio viewed together provides the most holistic view of the efficiency with which a portfolio is managed, as the all-in Total Expense

Ratio cannot hide any expenses and the Same Store Direct Operating Expense Ratio shows where the portfolio is heading when all facilities are leased up.

Portfolio Management Expenses were given in the third column in the two summary tables above and were included in the analysis as one of the three focus ratios, as they indicate how efficiently management is managing and growing the portfolio from an overhead perspective. It is, however, important to consider the number of leasing up facilities across portfolios that are compared on the basis of the Portfolio Management Expense ratio.

4.5 Semi-structured interviews about the research findings

During the semi-structured interviews mentioned in section 3.3.3 above, all three interviewees indicated that the results as shown in Table 19 above are generally in line with their experience of the industry. Interviewee 3 (2016), however, indicated that the Portfolio Management Expenses of the listed international self storage portfolios were higher than he expected. This could be because self storage facilities are valued on a property level. As mentioned in section 2.5 above, when valuing an individual self storage facility and estimating the expenses, only the direct operating expenses tend to be used by the valuer, to which a 4–7% management fee is added to obtain a ‘market’ related Total Expense Ratio (Correl, 2003; Blackwell, 2009a; Rode, 2011; Sonne, 2012). In contrast to this ‘standard 4–7%’ method, this research draws actual data from published financial statements of the listed international self storage portfolios. It can therefore consider and obtain all expenses in the portfolio and therefore obtain a complete view of all expenses associated with managing self storage facilities and the actual cost of managing a self storage portfolio. This actual data in the financial statements is therefore used in this research rather than an approximation of the portfolio management cost from the management fee charged in third-party management contracts.

All three interviewees confirmed that expense ratios are critical when valuing a self storage facility or portfolio to ensure the net income is both realistic and market related (Interviewee 1, 2016; Interviewee 2, 2016; Interviewee 3, 2016).

Furthermore, all three interviewees indicated that the 4–7% management fee added to the Direct Operating Expense by valuers to obtain a market related Total Expense Ratio when valuing a self storage facility is derived from the third-party management fee charged by listed international self storage portfolios when managing a facility on behalf of an external owner. The interviewees perceived this management fee to be an indication of an arm’s length cost of performing overhead management required of an owner of a facility.

Interviewee 2 (2016), however, pointed out that there may be another incentive for the third-party manager which is not reflected in the management fee. The third-party management

agreement often includes a first option for the third-party manager to acquire the facility should the owner wish to sell in future. This is an attractive advantage for listed portfolios which have a strong need to acquire grade A leased-up facilities that can contribute to the portfolio's high dividend yield requirement from day one. These listed portfolios have difficulty in developing self storage facilities, as a self storage facility takes three to five years after construction to reach full income. Most listed portfolios are REITs, which are expected to yield constant dividends on their invested capital, meaning that a new self storage facility that only yields 20% of its full income in the first year, for example, places the portfolio in a negative light for investors who evaluate the portfolio as a whole by the dividend it pays out as percentage of total asset value (Interviewee 2, 2016).

All three interviewees indicated that significant capitalisation rate compression is evident in the markets they operate in, especially for portfolios with a high portion of grade A quality facilities. They indicated that approximately 5–10 years ago, a standard capitalisation rate of 10% was observed for self storage, irrespective of facility grade or portfolio; recently, however, a clear trend of compression in the self storage capitalisation rate has emerged, with a 4.5–5.5% capitalisation rate for grade A facilities being observed in the US, and a 5–6% capitalisation rate for grade A portfolios in the UK has been observed in 2016 (Interviewee 1, 2016; Interviewee 2, 2016; Interviewee 3, 2016).

4.6 Conclusion

This chapter carried out the research in the manner outlined in Chapter 3. It covered the last three of the four stages described in the methodology. Data was collected as per stage 2 from the international listed self storage portfolios. Thereafter the third stage collected data from the South African case studies and the fourth and final stage summarised the three data sources and identified patterns in the data.

After summarising the data in stage four, the expense ratios of the South African case studies were discussed in the context of the literature and the international self storage industry research to obtain results with which a guideline for South African self storage expense ratios can be established. The chapter concluded by summarising the outcomes of semi-structured interviews with self storage industry experts in the UK and US where the interviewees' opinions on the research outcomes were gathered and considered.

In the concluding chapter that follows, the results of chapter 4 will be used to present answers to the research questions. It will then discuss the extent to which the research proposition has been proved or disproved and use the results to indicate the degree to which the research objectives have been achieved.

Chapter 5 Conclusions and Implications

5.1 Introduction

This final chapter's introduction is longer than the previous chapters' introductions so that it can summarise the earlier chapters and revise the research problem and questions. Thereafter, the conclusions about each research question are reviewed.

Chapter 1 provided background to the self storage industry. It introduced the research problem of the lack of a self storage expense ratio guideline in South Africa. The research was justified in showing why such an expense ratio guideline is necessary. The methodology was briefly described, the research outlined and the limitations stated.

The research problem statement was: 'There is currently no published South African guideline for self storage expense ratios in terms of total expenses, direct facility operating expenses and Portfolio Management Expenses.'

In addition, expense category definitions vary from portfolio to portfolio, making comparison difficult.

There is further a need to understand how South African expense ratios relate to the global self storage industry. Without such guidelines in the South African market, it is not possible to facilitate proper evaluation of a developing self storage investment opportunity or identify if and where economies of scale can be found in terms of expense ratios in the self storage property type.

The research questions are:

- (a) What should the South African self storage expense guideline be for portfolio investments?
- (b) How do the established South African expense guidelines compare to international benchmarks?
- (c) How should expenses be classified – as Direct Operating Expenses or Portfolio Management Expenses – to enable market comparison?
- (d) How may economies of scale affect self storage expense ratios?

Chapter 2 started off with a discussion of valuation of self storage and then showed how self storage expense guidelines and annual industry surveys are used and required in valuation of self storage facilities. It emphasised the difficulty of obtaining expense data in the market and

thereby showed how important expense ratio guidelines are for providing expense data of the market.

Available expense guidelines and annual industry surveys were then discussed and their key findings presented. The most important findings from the guidelines and annual industry surveys, were that these literature sources indicated the Total Expense Ratio to range from a low of 37% to a high of 51%. The literature review was ended off with self storage industry definitions as defined in the collection of literature reviewed and these definitions were used in the research.

Chapter 3 discussed the methodology. The methodology was justified by showing that a case study is the applicable research method. Thereafter, the reason of choosing the sources of data was explained as well as the reason for defining some expense categories as they were defined. Data sources were shown to be from sufficiently similar markets as that of South Africa.

The methodology was then explained to consist of four stages. The first stage described the method of data collection of expense ratios from the literature as was done in the literature review. The second stage described the method of data collection from the international self storage industry by analysing published financial statements of international listed self storage portfolios. The third stage described the method of data collection from the South African case studies. The fourth and final stage specifies how data collected in stages 1 to 3 would be analysed. From the analysis, a guideline for South African self storage portfolios would then be proposed.

Chapter 4 carried out the research in the manner outlined in Chapter 3, Methodology. It carried out the last three stages of the four stages described in the Methodology, as stage 1 was carried out in Chapter 2, Literature Review. Data was collected, as per stage 2, from the international listed self storage portfolios. Thereafter the third stage collected data from the South African case studies and the fourth and final stage summarised the three data sources, identified patterns in the data and drew conclusions for a guideline for self storage expense ratios in South Africa.

Conclusions can now be drawn to answer the research questions after the data collection, analysis and summary. These findings and conclusions are presented in the next section.

5.2 Conclusions regarding each research question

The previous section of this chapter presented the expense ratios as per the literature, international listed self storage portfolios and South African case studies in summarised tables.

This enabled a comparison of the South African case studies to both the literature and the international listed self storage portfolios to place the expense ratios of the South African case studies into context.

It was then found that the data had a pattern that arose if the expense ratios of each portfolio was plotted against the number of facilities in the portfolio.

These patterns will be used in the final section of this chapter to present conclusions with which to answer the research questions and point out their use in addressing the research problem.

5.2.1 Research question (a): What should the South African self storage expense guideline be for portfolio investments?

From the above analysis on the relationship between expense ratio and number of facilities, a pattern in the data emerges that when facilities are grouped by portfolio size, a corresponding decreasing expense ratio will be found. This can form the basis of a self storage expense ratio guideline for South Africa if more data is obtained according to the methodology of this research.

In Table 21 below, the data of the international listed and case study portfolios was divided into small, medium and large portfolio categories based on the number of facilities in each portfolio. Small portfolios were classified as portfolios with fewer than 100 facilities, medium portfolios with 100 to 1,500 facilities, and large portfolios with more than 1,500 facilities.

Table 21: Expense ratios relative to number of facilities in the portfolio

| | Total Expense Ratio (as % of EGI) (consolidated) | | | Direct Operating Expense Ratio (as % of EGI) (same store) | | | Portfolio expense ratio (as % of EGI) (consolidated) | | |
|--|--|---------|------|--|---------|------|--|---------|-------|
| | Low | Average | High | Low | Average | High | Low | Average | High |
| Small portfolios (< 100 facilities) | 37% | 43% | 52% | 23% | 29% | 34% | 10.0% | 12.2% | 16.0% |
| Medium portfolios (100–1500 facilities) | 39% | 41% | 43% | 30% | 31% | 32% | 7.5% | 9.0% | 10.4% |
| Large portfolios (> 1500 facilities) | 31% | 31% | 31% | 27% | 27% | 27% | 3.0% | 2.8% | 3.0% |

When categorising portfolios according to these criteria, the results shows that expense ratios decrease as the number of facilities in a portfolio increases.

Ordering the data in this manner creates a pattern from which the process of establishing an expense ratio guideline for self storage portfolios can begin.

In terms of the Total Expense Ratio, the results of medium-sized portfolios in the table above agree with the literature on the valuation guidelines, as shown in Table 3, which is repeated below for ease of reference.

Table 3: Total Expense Ratio – summary of literature recommendations

| Guideline literature source | Total Expense Ratio (% of EGI) |
|------------------------------------|---|
| US Expense Guidebook | 39.5% |
| Sonne – Appraisal Institute | 37.3% |
| Correl – Appraisal Institute | 37.0% |
| Almanac – SSA of Australia | 50.6% |
| Rode – SS Properties in RSA | 44.7% |
| Average | 41.8% |

The average Total Expense Ratio in the literature amounts to 41.8%, compared to 41% in Table 21 above, indicating close agreement on the Total Expense Ratio between the results of this research, for small and medium portfolios only, and the literature. The wide range of Total Expense Ratios also agrees with the literature as can be seen in Table 3 below. The large portfolios in Table 21 above, however, have a lower Total Expense Ratio than any of the literature recommendations of 31%, a difference of 10.8% points from the average recommendation in the literature. This indicates the importance of considering the size of a portfolio when attempting to estimate its Total Expense Ratio.

In terms of the Direct Operating Expense Ratio, the literature recommends a higher percentage than the results of this research, with the literature indicating an average of 35%, a high of 38% and low of 32%, as shown in Table 4 below, which is repeated for ease of reference. The research results in Table 21 above, indicate an average for small portfolios of 29% with a high of 34% and low of 23%. The medium and large portfolios fit into this range.

Table 4: Direct Operating Expense Ratio – summary of literature recommendations

| Guideline literature source | Direct Operating Expense Ratio (% of EGI) |
|------------------------------------|--|
| US Expense Guidebook | 38% |
| Sonne – Appraisal Institute | 32% |
| 2015 UK SSA Survey* | 38% |
| Correl – Appraisal Institute | 32% |
| Almanac – SSA of Australia | 36% |
| Rode – SS Properties in RSA | 34% |
| Average | 35% |

Lastly, in terms of the Portfolio Management Expense Ratio, Table 5 below, repeated for ease of reference, shows that the literature has a lower Portfolio Management Expense Ratio average of 7.5%, compared to the research results in Table 21 above, indicating 12.2% for small portfolios, 9% for medium portfolios and 2.8% for large portfolios. The literature has a similar range of 3.8% to 15.1%. This research therefore confirms the importance of the number of facilities in a portfolio and the impact it has on Portfolio Management Expenses, and secondly, that one must consider the number of facilities in a portfolio when attempting to evaluate the portfolio.

Table 5: Portfolio Management Expense Ratio – summary of literature recommendations

| Guideline literature source | Portfolio Management Expense Ratio (% of EGI) |
|------------------------------------|--|
| US Expense Guidebook | 5.7% |
| Sonne – Appraisal Institute | 5.0% |
| 2015 UK SSA Survey | 3.8% |
| Correl – Appraisal Institute | 5.0% |
| Almanac – SSA of Australia | 15.1% |
| Rode – SS Properties in RSA | 10.3% |
| Average | 7.5% |

Table 21 above answers the question of what the self storage expense guideline should be for portfolio investments. It also indicates the saving in Portfolio Management Expenses available to large portfolios from the economy of scale that arises. The economy of scale pattern is further addressed in the discussion on the fourth research question below.

Table 21, however, is not yet an expense ratio guideline for self storage portfolios in South Africa specifically. This is because portfolios sizes referred to in Table 21 contain two irrelevant categories for the South African self storage market, being medium-sized portfolios of 100 to 1,500 facilities and large portfolios of 1,500 and over. Firstly, the South African self storage market only consists of approximately 350 facilities (Storage RSA, 2016). Secondly it was shown in section 1.1 that individual self storage portfolios internationally have achieved a maximum of 10% market share. Therefore, it will be an exception if a South African self storage portfolio manages to exceed 100 facilities in the South African market in its current size.

This implies that only the first size category in Table 21, namely Small Portfolios, can be considered to be applicable to South African portfolios. Therefore, as a first attempt in establishing an expense ratio guideline for self storage portfolios in South Africa specifically, the following guideline is proposed in Table 22 below for the three focus expense ratios:

Table 22: Expense ratio guideline for self storage portfolios in South Africa

| Total Expense Ratio (as % of EGI) (consolidated) | | | Direct Operating Expense Ratio (as % of EGI) (same store) | | | Portfolio Management Expense Ratio (as % of EGI) (consolidated) | | |
|--|------------|------|---|------------|------|---|------------|------|
| Low | Average | High | Low | Average | High | Low | Average | High |
| 37% | 43% | 52% | 23% | 29% | 34% | 10% | 13% | 16% |

5.2.2 Research question (b): How do the established South African expense guidelines compare to international benchmarks?

Each of the three focus expense ratios is discussed separately to answer the research question on whether the South African Expense Guideline is in line with international benchmarks.

Beginning with the Total Expense Ratio, Table 23 below shows the South African portfolio average of 44% compared to the international portfolio average of 39%, so one could conclude that the South African portfolios have a higher Total Expense Ratio.

It has been shown in this research that there is a high sensitivity in the expense ratio relative to the number of facilities in the portfolio. Therefore, the smaller international listed portfolios were also compared to the South African case studies to provide another perspective.

Table 24 below therefore compares the South African portfolios to only the smaller-sized international portfolios. This table shows that the South African portfolios are still on average 2% points higher in terms of Total Expenses with the South African portfolios averaging to 44% compared to 42% for the small international portfolios.

With respect to the Direct Operating Expense Ratio, Table 23 shows the South African case studies are 2% points lower than the international portfolios with 28% versus 30%. Comparing the South African studies to the smaller sized international portfolios in Table 24, the South African case studies are still 2% points lower on Direct Operating Expenses, with 28% versus 30%.

However, in relation to the Portfolio Management Expense Ratio, Table 23 below shows the South African case studies are 5% points higher on average than the international portfolios with 12.7% versus 7.7%. Comparing the South African studies to the smaller sized international portfolios again in Table 24, the South African case studies are still 3.5% points higher on Portfolio Management Expenses with 13.5% versus 10%.

The last consideration is that Source A and B of the South African case studies in Table 23, have lower expense ratios than the international comparables in the same table, except for the Portfolio Management Expense Ratio. Sources C and D were higher in all three categories except for the Direct Operating Expense ratio of Source C, which is equal to that of Big Yellow.

Table 23: Condensed expense ratio summary table

| International Listed Portfolios | Total Expense Ratio (Consolidated) | Direct Expense Ratio (Same Store) | Portfolio Expense Ratio (Consolidated) |
|---|---|--|---|
| Public Storage 2014 (US)* | 31% | 27% | 2,8% |
| ExtraSpace 2013 (US) | 39% | 30% | 10,4% |
| CubeSmart 2014 (US) | 43% | 32% | 7,5% |
| National Storage 2015 (Aus) | 41% | | |
| Big Yellow 2015 (UK) | 43% | 30% | 10,1% |
| Average | 39% | 30% | 7,7% |
| <i>* only Public Storage shows allocatable direct costs, so if allocatable indirect costs are not added back to direct costs, a direct expense ratio of 25% is obtained</i> | | | |
| RSA Case Studies | | | |
| RSA Source A | 37% | 26% | 11,3% |
| RSA Source B | 39% | 23% | 15,9% |
| RSA Source C | 52% | 30% | 10,7% |
| RSA Source D | 46% | 34% | 12,7% |
| Average | 44% | 28% | 12,7% |

Table 24: Comparison of smaller international portfolios to the South African case studies

| | Total Expense Ratio (as % of EGI) (Consolidated) | Direct Operating Expense Ratio (as % of EGI) (Same Store) | Portfolio Expense Ratio (as % of EGI) (Consolidated) | Number of Facilities Managed |
|--|---|--|--|-------------------------------------|
| International listed portfolios | | | | |
| National Storage 2015 (Aus) | 41% | - | - | 87 |
| Big Yellow 2015 (UK) | 43% | 30% | 10% | 84 |
| Average | 42% | 30% | 10% | |
| RSA Case Studies | | | | |
| RSA Source A | 37% | 26% | 11% | 6–40 |
| RSA Source B | 39% | 23% | 16% | 6–40 |
| RSA Source C | 52% | 30% | 14% | 6–40 |
| RSA Source D | 46% | 34% | 13% | 6–40 |
| Average | 44% | 28% | 13,5% | |

From this discussion, the South African case studies are considered to be within range of the smaller international portfolios. This conclusion, however, is based on a small amount of data and is therefore not presented as a certain fact, but rather as a preliminary conclusion based on the current research. More data is required to confirm this preliminary conclusion.

5.2.3 Research question (c): How should expenses be classified – as Direct Operating Expenses or Portfolio Management Expenses – to enable market comparison?

It has been shown in Chapter 2 of this research that there is a lack of standard self storage expense ratio definitions. However, for this research, the definitions in section 2.3 can be used as a proposed standard definition of expense categories. These definitions have been formulated after researching the valuation guidelines and analysing the international listed self storage portfolio financial statements. The definitions of Direct Operating and Portfolio Management Expense categories are repeated here in answer to the research question:

Direct Operating Expense Ratio

Direct Operating Expenses are expenses directly related to operating and managing an individual self storage facility. These include On-Site Management Expenses, Supervisory Expenses, and Allocated Overhead. (Public Storage, 2014)

In this research, Direct Operating Expenses of Same Store facilities have been used and divided by the Same Store EGI to obtain the Direct Operating Expense Ratio.

Portfolio Management Expenses

Portfolio Management Expenses refer to the expenses of managing the self storage property portfolio, i.e. those of both mature and leasing up facilities. These expenses include remuneration of senior executives, legal costs, supervisory payroll, and share-based incentives.

This figure is typically found in the consolidated income statement of the company and is used to illustrate the expense ratios of operating portfolios with various number of facilities (mature and still in lease up).

5.2.4 Research question (d): How would economies of scale affect self storage expense ratios?

Table 21 above is repeated in Table 25 below for ease of reference. This table shows that one could expect a maximum decrease in Total Expenses of 12% points, calculated by the difference between the 43% average Total Expense Ratio for Small Portfolios and 31% average Total Expense Ratio for Large Portfolios.

Table 25: Expense ratios relative to portfolio size

| | Total Expense Ratio (as % of EGI) (consolidated) | | | Direct Operating Expense Ratio (as % of EGI) (same store) | | | Portfolio expense ratio (as % of EGI) (consolidated) | | |
|--|--|------------|------|--|------------|------|--|--------------|-------|
| | Low | Average | High | Low | Average | High | Low | Average | High |
| Small portfolios (< 100 facilities) | 37% | 43% | 52% | 23% | 29% | 34% | 10% | 12,2% | 16% |
| Medium portfolios (100–1500 facilities) | 39% | 41% | 43% | 30% | 31% | 32% | 7,5% | 9,0% | 10,4% |
| Large portfolios (> 1500 facilities) | 31% | 31% | 31% | 27% | 27% | 27% | 3% | 2,8% | 3% |

From this table, one can conclude that economies of scale are present in self storage expense ratios.

The quantum of the economy of scale should also be considered, as this would indicate whether a small portfolio should aim to increase its number of facilities under management to decrease its Portfolio Management Expenses and remain competitive.

If a 12% points saving on Total Expenses could be achieved by a large portfolio, it implies that a large portfolio would theoretically be able to decrease its rental rates by 12% and still produce the same return to shareholders as a small portfolio, all other factors being equal.

5.3 Research proposition achievement

In this section, the research propositions as stated in section 1.6 above, are reviewed to evaluate the extent to which they have been achieved.

The first research proposition was that a guideline of South African self storage expense ratios is required to understand and enable efficient investment and evaluation of South African self storage investment returns and opportunities. This was shown to be the case in the literature review in Chapter 2 and in the justification for the research in section 1.2, by showing how other mature self storage markets have expense guidelines and how such guidelines are critical for evaluating investment decisions and returns on self storage opportunities. It was shown to be a critical input in valuation, because expense data is currently unavailable compared to income data for self storage.

The second research proposition was that South African expense ratios compare favourably with international benchmarks. This was shown to be the case, specifically in that the South African expense ratios are in line with the small listed international self storage portfolios, being those that have fewer than 100 facilities.

The third research proposition was that South African expense ratio categories lack standard definitions. This was clearly shown to be the case in the literature review in Chapter 2.

The final research proposition was that economies of scale exist in expense ratios of self storage portfolios. This was shown to be the case to the extent that an approximately 12% points saving can be achieved in the Total Expense Ratio when a self storage portfolio reaches more than 1,500 facilities compared to a portfolio with fewer than 100 facilities.

5.4 Research objective attainment

In this section, each research objective, as stated in section 1.7 above, is reviewed to evaluate the extent to which it was attained.

The first research objective was to analyse international expense guidelines by considering benchmark publications and the establishment of expense definitions and classifications, and their application to the South African market. This research succeeded in analysing international expense guidelines and considering benchmark publications. It also established expense definitions in a manner applicable to the South African market.

The second research objective was to establish and analyse the expense ratios of the large self storage portfolios in South Africa and compare these to international benchmarks. This objective was achieved.

The final research objective was to analyse the potential for economies of scale in South African self storage expense ratios. This objective was met by indicating that an approximately 12% points saving could be achieved in the Total Expense Ratio when a self storage portfolio reaches more than 1,500 facilities compared to a portfolio with fewer than 100 facilities.

5.5 Contributions to the research problem

The contributions to the research problem were as follows:

- A first attempt for a South African guideline for self storage expense ratios has been proposed in this research.
 - This guideline is backed by and based on a comprehensive literature review and a review of well-known and respected international valuation guidelines and expense ratio guidelines.
 - The proposed guideline was contextualised by the international self storage industry research, which was based on a comprehensive sample of listed self storage REITs in the US, UK and Australasia. The limitation, however, was that more than 80% of these markets are privately owned, therefore their financial and expense data is not available due to private incorporation.
- The expense ratios of self storage portfolios in South Africa were shown to be in line with the international self storage portfolios of a similar size.
- A lack of standard self storage expense ratios was evident and subsequently, a standard definition of Direct Operating and Portfolio Management Expenses was proposed.
- It was shown that there are only limited economies of scale related to Portfolio Management Expenses.

5.6 Implications for theory and practice

The implications of this proposed guideline for theory and practice relate to valuation of self storage portfolios and performance benchmarking.

In terms of valuation theory, this guideline will aid valuers because clear definitions of expense categories have been provided in this research. It will therefore be clearer for a valuer to distinguish which expenses should be included when valuing an individual self storage facility and which should be included when valuing a self storage portfolio.

In terms of valuation practice, it is recommended that, as per the literature review, Direct Operating Expenses are included when valuing a self storage facility, and only when valuing a self storage portfolio can Portfolio Management Expenses be included. When valuing a

portfolio though, a lower portfolio capitalisation rate must be used as shown by Loots (2014) and MJ Partners Self Storage Group (2016), due to the decreased risk (volatility) and increased management skill in a portfolio of self storage facilities compared to that of a single facility.

In terms of performance benchmarking in practice, the high and low range of expense ratios provided in the guideline will indicate over- or underperformance of management in terms of expenses and will also help managers identify where room for improvement lies or where underspending can be addressed.

The observation that self storage has given high returns with a low standard deviation, brings to the fore the question on whether it is sensible to add a premium to the capitalisation rate of industrial buildings to arrive at a capitalisation rate for valuing self storage facilities. It has been shown in this research and by other industry analysts that the capitalisation rate for self storage facilities should be lower than the capitalisation rate of prime industrial buildings.

5.7 Implications for further research

An opportunity for further research would be to expand the study with more positivist data to generalise the findings (Perry, 1995). More data would be available if the study was expanded into private self storage portfolios on a similar basis to what the MSCI International Property Data Bank has done with the retail, industrial and office property segments globally.

Another opportunity for future research would be to segment the data further into grade A, B and C self storage facilities and portfolios, as the income and expenses differ widely between these grades of self storage facilities. A simple example to illustrate the reasoning for this is advertising expenses. Grade A facilities tend to have low advertising expenses due to their prime and visible location, whereas a grade C facility is generally located far from the centre of town and therefore because it is not visible, it needs to expend more on advertising, which has a significant impact on its Direct Operating Expense Ratio.

If more data were available, the guideline could also be segmented into smaller intervals of portfolio size, i.e. number of facilities under management. This would make the guideline more specific and might bring other patterns of data to the fore. Other international markets could be researched to add more data and potentially bring new patterns of data to the fore.

An opportunity for future research exists in the area of economies of scale in self storage and specifically on the approximately 12% points saving on expenses identified for large portfolios in this research. It could be researched whether the 12% points saving on expenses was sufficient to make a facility more attractive to prospective customers if this saving were passed to a customer as a discount on unit rental rates. One would have to consider the influence of

discounts in making a facility more attractive for a prospective customer, relative to other customer decision influencing factors, such as visibility and accessibility to major transport routes, proximity to residential and retail areas, and building quality.

Lastly, Sonne's remark (2016a), discussed in section 2.2 above, indicated that grade A self storage facilities, which imply a good location, access and quality building, generate more than 100% higher net operating income than class C facilities. It could therefore be researched whether, with all other factors being equal, a 12% points discount in rental rate by a large portfolio with class C facilities would threaten the competitiveness of a small portfolio with class A facilities. Sonne's statement (2016a) suggests that customers are not primarily price sensitive, but rather quality sensitive, as they are prepared to pay 100% more for a class A self storage unit than for a class C unit. The proposition for further research is therefore that the class or grade of the self storage facility makes it more competitive and profitable than the size of the portfolio it forms part of.

References

- Big Yellow (2015) *Annual Report and Accounts 2015*. Bagshot, Surry, UK: Big Yellow Group PLC.
- Big Yellow (2016) *Big Yellow Self Storage - About Us* [Online]. Available: <http://corporate.bigyellow.co.uk/about-us.aspx> [Accessed July, 23, 2016].
- Blackwell, D. (2009a) Valuation of Self Storage Facilities. *Australia and New Zealand Property Journal*, **March 2009**, 46-50.
- Blackwell, D. (2009b) Self Storage - the Industry and Valuation Issues. *Australia and New Zealand Property Journal*, 39 - 45.
- Business Dictionary (2016) *Definition of Fragmented Industry* [Online]. Available: <http://www.businessdictionary.com/definition/fragmented-market.html> [Accessed 21 September 2016, 2016].
- Cook, C.H., F. Thompson, RL (2000) A Meta-Analysis of Response Rates in Web- or Internet-Based Surveys. *Educational and Psychological Measurement*, Sage Publications, **60**(6), 821-836.
- Correl, R.R. (2003) *Market Analysis and Valuation of Self Storage Facilities*. Illinois: The Appraisal institute.
- Creswell, J.W. (1998) *Research Design – Qualitative and Quantitative Approaches*. Thousand Oaks, California: Sage Publications.
- CubeSmart (2014) *Annual Report*. Malvern, Pennsylvania:
- Dotson, J. (2016) Give Your Self Storage Facility Website A Competitive Edge in Your Target Market. In: *Self Storage Association Fall Conference 2016*, Linde, A.V.D., Ed., Las Vegas, Nevada.
- Evans, K., Ma, C., De Campos, D., Hepburn-Brown, J. and Edwardes, E. (2014) *Informal trading and township shopping centres in South Africa. Proceedings of the 7th Research Conference of the South African Council for the Quantity Surveying Profession*, Pretoria, South Africa: SACQSP.
- Extra Space Storage (2013) *Extra Space Storage Inc Supplemental Financial Information (unaudited) for the Three Months and Year Ended December 31, 2013*. Salt Lake City, Utah:
- Fitzgerald, W.F. (1981) The Valuation of a Miniwarehouse. *The Appraisal Journal*(July 1981), 353-360.
- Institute for Digital Research and Education (2011) *FAQ: What are pseudo R-squareds?* [Online]. Available: http://www.ats.ucla.edu/stat/mult_pkg/faq/general/Psuedo_RSquareds.htm [Accessed 21 January 2017, 2017].
- Interviewee 1 (2016) Personal Meeting. In: Van Der Linde, A., Ed., London.
- Interviewee 2 (2016) Personal Meeting In: Van Der Linde, A., Ed., London.
- Interviewee 3 (2016) Personal Meeting at the Self Storage Association Fall Conference 2016. In: Van Der Linde, A., Ed., Las Vegas, Nevada.

- Lok n Store (2015) *Lok n Store Annual Report 2015*. Farnborough, Hampshire, UK: Lok n Store PLC.
- London Stock Exchange (2016) *Companies and Securities - List of Real Estate Companies* [Online]. Available: <http://www.londonstockexchange.com/statistics/companies-and-issuers/companies-and-issuers.htm> [Accessed 13 August 2016, 2016].
- Marcus and Millichap (2016) *Self-Storage Investment Trends to Watch*.
- MiniCo (2015) *2015 Self Storage Expense Guidebook*.
- MJ Partners Self Storage Group (2016) *Self Storage Market Overview - Second Quarter 2016 Results: Analysis of the Public Self Storage Companies* MJ Partners Real Estate Services.
- MSCI (2015) MSCI US REIT Index (USD). In.
- National Storage REIT (2015) *National Storage REIT Annual Report 2015*. In.
- Perry, C. (1995) *A Structured Approach to Presenting PhD Theses: Notes for Candidates and their Supervisors*. ANZ Doctoral Consortium.
- Public Storage (2014) *Annual Report*. Glendale, California:
- PWC (2015) *IFRS and US GAAP - Similarities and Differences*.
- REIT.com (2016) *Self Storage REITs* [Online]. Available: <https://www.reit.com/rtc-segment/self-storage> [Accessed 13 August 2016, 2016].
- Rode, E., G Johnson and T Retief (2011) *Self Storage Properties in South Africa: A Valuation Perspective - Version 3*.
- Rode, E.G. (2015) *Rode's Report 2015 Q3*. Bellville, South Africa:
- Self Storage Almanac, S.S.A.M.a.R. (2014) *Self Storage Almanac 2014*. Phoenix AZ:
- Self Storage Association (2010) *An Introduction to Self Storage*. Alexandria, Virginia, USA: Self Storage Association.
- Self Storage Association and Deloitte Real Estate (2014) *The Self Storage Association UK Annual Survey 2014*. London:
- Self Storage Association of Australasia (2012) *Annual Australasian Self Storage Almanac 2012*. Bundoora, Victoria, Australia:
- Sonne, C. (2016) *CBRE Self-Storage Investor Survey Q3 2016*. CBRE.
- Sonne, R.C. (2012). In: Mckinley, M. (Ed.), *Self Storage Economics and Appraisal*. Chicago, Illinois: The Appraisal Institute.
- Stor-Age (2015) SA's First Self-Storage REIT to List on JSE. In, Stor-Age press release.
- Storage RSA (2012) *Company Market Research*. Somerset West, Cape Town, South Africa:
- Storage RSA (2016) *Company Market Research*. Somerset West, Cape Town, South Africa:
- UK Self Storage Association (2015) *The Self Storage Association UK Annual Survey*.

- Webb, E.D., T. Campbell, R. Schwartz, D. Sechrest, L. (1966) *Unobtrusive Measures: Non-Reactive Research in the Social Sciences*. Chicago: Rand McNally.
- Wilson, C.R. (1987) The Appraisal of a Self-Storage Facility. *The Appraisal Journal*, **July 1987**, 394-405.
- Yin, R.K. (1994) *Case Study Research - Design and Methods* Second ed. Vol. 5, *Applied Social Research Methods Series*, California, United States of America: Sage Publications, Inc.
- Yin, R.K. (2012) *Applications of Case Study Research*. Third ed. California, United States of America: Sage.
- Yu, H.-y. (2012) Best U.S. Real Estate With Self-Storage: Riskless Return In, Bloomberg.com.

Annexure A: Case Study Data Request Form

| A Study of Operating and Portfolio Management Expenses for Self Storage Facilities in South Africa, within a Global Context University Of Cape Town - MSc Property Studies (Thesis Research - AN van der Linde) | | |
|--|---------------|--|
| Case Study Data Form | | |
| Item | % of Turnover | Definition/Description |
| DIRECT FACILITY EXPENSES (Same Store Expenses* only) | | |
| Facility Administrative Expenses | | |
| On-Site Management Costs | | Full-time facility management expenses including assistant managers, relief managers, and payroll-related costs. |
| Off Site Management Fee (sub-total of the two items below) | 0,0% | Expenses at corporate office which covers corporate salaries, accounting staff, IT systems and all other corporate office expenses |
| Supervisory Expenses | | Compensation paid to management personnel who directly and indirectly supervise the on-site property managers |
| Allocated Overhead | | Shared general corporate functions which are allocated to self storage property operations to the extent their efforts are devoted to self storage operations. This includes data processing done by the corporate office, human resources, operational accounting and finance, marketing (excluding google ads and other direct online marketing, but includes web site development and maintenance costs) and costs of senior executives (other than the CEO and CFO which are included in portfolio expenses) |
| Other Administrative Expenses | | Expenses of booking system licence fees, accounting and software costs, access control software, legal and admin costs of evicting non-paying customers from storage units, travel costs, local licensing and permit fees, etc |
| Property / Liability / Casualty Insurance | | Insurance costs for facilities |
| Real Estate Taxes | | Property tax only |
| Advertising | | Media advertising and marketing expenses specific to a facility |
| Online Marketing | | Internet advertising and website expenses specific to a facility. Excludes web site development and maintenance which is included in Allocated Overhead |
| Other Expenses | | |
| Postage, Handling and General Office Expenses | | |
| Credit Card and Bank Charges | | |
| Phone Costs | | Telephone, cell phone and data expenses |
| Other | | Used as a catch-all for miscellaneous expenses that vary between sites, are infrequently used and do not match the other categories |
| Utilities | | Electricity, water, sewer service, garbage, levies etc |
| Maintenance and Repairs, Cleaning and Pests | | Electrical maintenance, elevator, landscaping, plumbing, roll up door maintenance, roof, security system, pest control, cleaning etc |
| Bad Debts | | Bad debts written off |
| TOTAL DIRECT EXPENSES | 0,0% | |

