

INVESTMENT IN PROPERTY BY AUSTRALIAN SUPERANNUATION SCHEMES

by

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A thesis submitted in fulfilment of the requirements for the Degree of
Doctor of Philosophy at the Western Sydney University.



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I.

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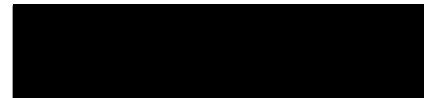
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Tiffany Janet Hutcheson

Date: 4th March 2019

III.

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IV.

PREFACE

The work herein was undertaken by the candidate in the School of Business, Western Sydney University. The candidate was supervised by Professor Graeme Newell and Associate Professor Chyi Lin Lee during March 2012 to January 2019.

This thesis has been supported by papers that have been published in international journals and conferences. The papers concerned are listed below.

Refereed Journal Articles

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VII.

LIST OF ABBREVIATIONS

AHP	Analytic Hierarchy Process
ANOVA	Analysis of Variance
APRA	Australian Prudential Regulation Authority
A-REITs	Australian Real Estate Investment Trusts
ATO	Australian Tax Office
AUM	Asset Under Management
ASX	Australian Securities Exchange
CI	Consistency Index
CR	Consistency Ratio
DFW	Degrees of Freedom
ELECTRE	Elimination and Choice Translating Reality
GFC	Global Financial Crisis
LSD	Least Significance Difference Test
MCDM	Multi-Criteria Decision-Making
MPT	Modern Portfolio Theory
REITs	Real Estate Investment Trusts
RI	Random Index
SMSF	Self-Managed Superannuation Fund
SGC	Superannuation Guarantee Charge
WSP	Weighted Sum Product
WSM	Weighted Sum Method

VIII.

EXECUTIVE SUMMARY

The superannuation sector in Australia accounts for close to AUD 2.5 trillion, representing major institutional investors in both a local and global context, of assets under management (AUM) in Australia's managed fund industry. This level of AUM makes up the majority of AUM in the industry. Over the past few decades, superannuation schemes have come to regard property as a key asset class to include in their multi-asset portfolios. This thesis explores the decision-making made by superannuation schemes when investing in property. It does this by identifying the main criteria used in this decision-making through a survey process and rigorous analysis.

To establish a background for the research in the thesis, an overview of the superannuation industry and descriptive case studies are undertaken to provide an understanding of the property exposure and allocation strategies of Australian superannuation schemes and overseas pension funds. The level of investment in direct property and indirect property, that is unlisted property funds and separate accounts, and listed property, is analysed. This background and the literature review on previous decision-making surveys allow seven independent factors and twenty-two independent sub-factors to be identified as the main criteria influencing the property investment decision-making process by institutional investors. The questionnaire models used in previous surveys did not allow respondents to indicate their level of preference for each of the factors and sub-factors. Consequently, a multi-criteria decision-making model was adopted to construct questions where respondents used pair-wise comparisons to indicate the importance of each factor or sub-factor relative to another factor or sub-factor. This allowed degrees of importance for each factor or sub-factor to be established.

Two sample groups, superannuation schemes and wholesale property funds, are surveyed by way of face-to-face interviews. A broad range of non-profit superannuation schemes of different sizes were surveyed, with the respondents being a chief investment officer or investment manager. As property is such an expensive asset to invest in, superannuation schemes often invest in wholesale property funds to obtain property exposure. Consequently, managers of wholesale property funds that invest on behalf of superannuation schemes in direct property were also surveyed. While time and travel restrictions limited the number of superannuation schemes and wholesale property funds that could be surveyed, the AHP methodology allows reliable and consistent findings to be generated from the survey responses.

Strategic decision-making is found to be the main factor influencing property investment by the superannuation schemes and wholesale property funds. The degree of importance placed on strategic decision-making by the survey respondents is considerably higher than the degree of importance they place on the other factors. This is in contrast to previous surveys undertaken over the past fifty years, which identified property type and location as the main factors influencing decision-making. Core, risk-adjusted return and return are found to be the main sub-factors. Previous surveys had ranked return analysis above risk-adjusted analysis. The responses by sub-groups of the superannuation schemes and the wholesale property funds were also analysed. Four significant differences were found to exist between the responses made by the superannuation scheme sub-groups, which are small, medium and large superannuation schemes. The differences are for two factors, property type and investment style, and two sub-factors, return analysis and local experience. Restrictive mandates and the lower level of funds held by the smaller superannuation schemes relative to the larger superannuation schemes could be reasons for these differences. Only one significant difference existed between the sub-group responses made by the diversified, retail, office and industrial wholesale property funds. It was for the sub-factor unlisted property fund.

This thesis contributes in three ways to the limited knowledge currently available on property investment decision-making by institutional investors. Firstly, it provides an in-depth analysis of the current strategic property allocation by superannuation schemes. Secondly, it identifies the main decision-making factors and sub-factors. Lastly, differences in the decision-making by the sub-groups of superannuation schemes and wholesale property funds are found to exist. Future research should be undertaken on the main factors and sub-factors identified in this thesis, to find out why they are so important. The reasons for the differences between the sub-groups decision-making should also be researched to establish if they affect the returns on their investment in property.

CHAPTER 1

INTRODUCTION

Chapter 1 provides the context, background and motivation for undertaking the research in this thesis. The aims and objectives of the research are described along with the contribution to knowledge that this research will achieve. This is followed by a brief preview of the research methodology and its limitations. Finally, the layout and the structure of the thesis are explained.

1.1 Research Background

Very little research has been undertaken in Australia and overseas on decision-making by fund managers. Furthermore, there has been very limited research focused on analysing decision-making by Australian superannuation schemes. This thesis will address this lack of research by examining Australian superannuation schemes decision-making in the area of property investment.

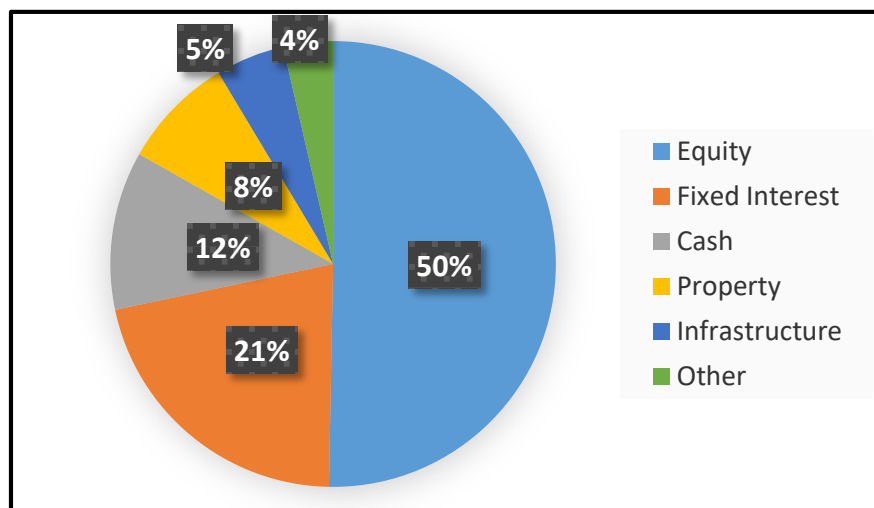
The assets under management (AUM) of pension funds across the world have been steadily increasing over the last few decades. Willis Towers Watson (2018, p. 10) reported an increase of 4.5% per annum in the AUM, held globally, by pension funds between 2007 and 2017. Australia is the fourth largest pension market in the world, although the total AUM in the Australian pension market is considerably less than the total AUM in the pension markets in the United States, United Kingdom and Canada. In particular, the total AUM held by United States pension funds, at USD 25 trillion, is close to eight times more than the USD 1.6 trillion held by Australian pension funds. However, the highest twenty year AUM growth globally has been in the Australian pension market, at 12.1% per annum (Willis Towers Watson, 2018 p. 6). The Australian government mandated requirement that employees contribute to a pension fund and the prevalence of defined contribution, also referred to as accumulation schemes in Australia, are two of the main reasons behind this growth.

In Australia, the managed fund industry is dominated by pension funds. In Australia, they are referred to as superannuation schemes. A unique characteristic of superannuation schemes, over other types of managed funds in Australia, is that since the introduction of the Superannuation Guarantee Charge (SGC) in 1992, it has been compulsory for people in the Australian workforce to contribute to a superannuation scheme. Currently, the mandated contribution that Australians must contribute is 9.5% of their before tax salary. Additional contributions are also permitted, subject to a cap. Tax concessions on the investment income earned by superannuation schemes make the compulsory contributions attractive. Furthermore, defined contribution schemes account for 87% of the Australian

superannuation schemes, compared to an average of 49% for pension funds globally (Willis Towers Watson, 2018 p.12). As the terminal value of the retirement benefits for members of defined contribution schemes depends on the proceeds from their invested contributions, rather than a specified terminal value like defined benefit schemes, defined contribution schemes do not face the risk of not being able to fully fund retirement benefits. Consequently, over the last two decades, whilst the number of superannuation schemes has decreased considerably, the average size of superannuation schemes has increased dramatically. The large amount of funds held by Australian superannuation schemes, AUD 2.3 trillion in September 2017 compared to AUD 321 billion in 2007, along with the fact that workers are unable to receive superannuation payments prior to retirement, means that superannuation schemes are one type of institutional investor that would benefit from including property in their investment portfolio (Newell, 2007). The long-term nature of superannuation means that superannuation schemes will be looking to diversify this large amount of funds across various asset classes, such as property, that can achieve high returns over the long run and are not highly correlated.

The total asset allocation by pension funds globally to the alternative asset classes of property, infrastructure and private equity has increased from 4% to 20% over the last twenty years (Willis Towers Watson, 2018 p. 6). On average, in 2017, Australian superannuation schemes allocated 8.2% of their portfolio to investing in property. Figure 1.1 shows the decomposition of the average asset allocation of Australian superannuation schemes.

Figure 1.1 Asset Allocation by Australian Superannuation Schemes: June 2017



Source: Statistics calculated from APRA (2018a)

Carruthers (2015, pp. 5-6) and government statistics show that since 2006, the asset allocation by superannuation schemes to property has been 7% to 9% of their AUM.

In addition, in 2017, 97% of the superannuation funds that provide the Australian Prudential Regulation Authority (APRA) with statistics, invested in property (APRA, 2018a).

Of the four types of superannuation schemes regulated by APRA, which are industry, public sector, corporate and retail, the industry superannuation schemes had the highest average allocation to property in 2017 at 9.8%. Retail superannuation schemes had the lowest average allocation at 6.3%. The average split between listed property and unlisted property being 40%/60%. Listed property being portfolios of property that are listed on a stock exchange and units in the portfolio being traded through a stockbroker on the exchange. Units in unlisted property are received from and sold back to the unlisted property trust. Unlisted property is made up of investments in direct property and wholesale unlisted property funds. Only the large superannuation schemes have sufficient funds to directly invest in property. So the majority of unlisted property investments by superannuation schemes is in wholesale unlisted property funds. The top ten unlisted wholesale property funds account for over 90% of the AUM in the property fund industries. Superannuation schemes are amongst their largest investors. These top ten are the unlisted wholesale property fund managers; The Goodman Group, Lend Lease Real Estate Investments, AMP Capital Investors, QIC Real Estate Funds, Dexus Property Group, ISPT, GPT Group, Charter Hall Group, Investa Property Group and Challenger. Full details of these players will be provided in subsequent chapters of this thesis.

The level of investment in property by superannuation schemes implies they regard property as a key asset class in their investment portfolio. This research on the decision-making by a superannuation scheme's property investment manager, in terms of their strategic asset allocation and investment in property, will highlight why property has become a key asset class for Australian superannuation schemes.

1.2 Research Aims and Objectives

This research aims to advance the knowledge of property investment by managed funds. In particular, to develop an understanding of the decision-making by superannuation schemes on property investment. The research question that will be addressed is "What are the current criteria used by institutional investors when investing in property?". In order to answer this question, the thesis has the following objectives:

- Investigate the level of investment in property by Australian superannuation schemes.

- Illustrate, using descriptive case studies, the current asset allocation by pension funds to property, both in Australia and globally.
- Identify the potential criteria, which in this thesis will be referred to as factors and sub-factors that could be used by institutional investors when deciding on the level of property to include in their portfolio of investments.
- Determine the main factors and sub-factors, via a survey of institutional property investors, which influence their decision-making on property investment.
- Use the survey findings to extend the body of knowledge on the practical implications of property investment by institutional investors.

1.3 Proposed Contributions to Knowledge

This thesis contributes to the existing knowledge in three ways. Firstly, it provides an in-depth analysis of property investment by Australian superannuation schemes. Secondly, it extends on the findings of previous survey research undertaken on the decision-making by institutional investors when they invest in property. Thirdly, it examines the decision-making by sub-groups of the survey participants.

Publicly available information provided by government bodies and investment advisory companies, such as APRA and Willis Towers Watson, and individual pension funds is used to analyse the property portfolios of Australian superannuation schemes. This investigation includes a comparison of the property asset allocation and strategic decision-making by Australian superannuation schemes with overseas pension funds.

Previous survey research on property investment by institutional investors has focused on asking questions on basic decision-making models used by investors. Survey analysis of the criteria used by institutional investors did not begin until the early 1970s. Wiley's (1976) survey of real estate equity investors in the United States and Canada was the first survey that focused on investment criteria. Farragher (1982), a decade later, was next to survey institutional investors on their property investment decision-making. Their sample group was made up of institutional investors in the United States. Later surveys of United States institutional investors were completed by Page (1983), Webb (1984), Webb and McIntosh (1986), Louargand (1992), Farragher and Kleiman (1996), Worzala and Bajtelsmit (1997) and Farragher and Savage (2008). Institutional property investors located outside of the United States were not surveyed until the early 1990s, when Newell, Stevenson and Rowland (1993) surveyed Australian institutional property investors. The other

surveys on Australian institutional investors were undertaken by Boyd, MacGillivray and Schwartz (1995), Rowland and Kish (2000), Newland (2008) and Reddy (2012). De Wit's (1996) survey of insurance companies and pension funds in the Netherlands, is another one of the main surveys on non-United States institutional property investors. The research surveys in the United States, Europe and Australia undertaken after Wiley (1976), asked similar questions to those asked on Wiley's (1976) survey, as well as a few of their own questions. The most recent survey by Reddy (2012) included a range of questions on asset allocation decisions, as well as questions asked in the other surveys. In addition, Reddy (2012) surveyed two groups, rather than one, in Australia. The groups were institutional investors and asset consultants used by the institutional investors to advise them on their property investments. There were some slight differences in the survey questions answered by the two groups. The general differences between all the surveys are that they ask their questions in different ways and surveyed different populations during different time periods. However, their survey responses and the resulting analysis suggest that property investment has become more sophisticated over time, but there has been little change in the major factors used for decision-making. This thesis extends on these findings by examining the criteria used by institutional property investors in a more recent time period, breaking the factors into independent sub-factors and analysing these separately, exploring the relationships between the different factors and sub-factors and analysing the relative importance of the alternative decisions being made.

During the survey process, it was noticeable that responses by sub-groups of the survey participants were inconsistent. Consequently, the responses by the sub-groups, as well as the whole group, are analysed. Differences in the decision-making by the sub-groups will contribute to the understanding of limitations that institutional investors can experience when investing in property.

1.4 Research Methodology

The research design involves both quantitative and qualitative approaches being used to examine the decision-making of Australian superannuation schemes in property investment. The quantitative approach will involve a statistical analysis of the level of property investment by superannuation schemes in Australia. An interview survey will be used in the qualitative approach to collect information on the decision-making by superannuation schemes.

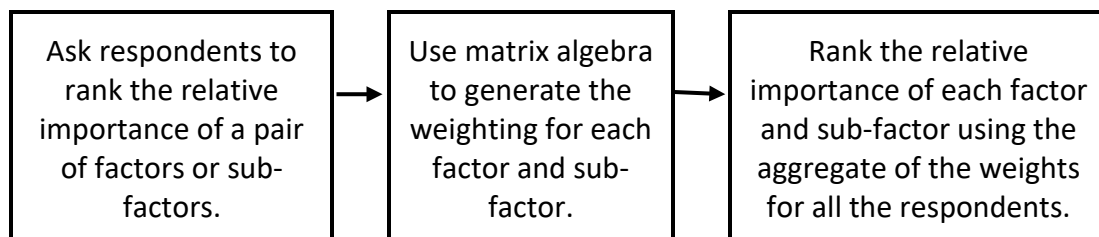
The survey analysis undertaken so far, on decision-making by institutional investors, have mainly involved a mail survey. Only De Wit (1996) differed, in that their survey was face-to-face. Furthermore, some of the surveys provided the respondents with multiple choice questions and asked them to indicate which choice

was the best choice or absolute choice. The others provided questions that allowed the respondent to rank the importance of the alternative choices. The ranking choice technique can be considered as superior to the absolute choice technique, as it allows the relative importance of the choices to be revealed. However, the ranking techniques used in the previous surveys do not allow the degree of relative importance to be measured.

This thesis uses a multi-criteria decision-making methodology, Saaty's (1977) Analytic Hierarchy Process (AHP), as the survey method. AHP allows the relative importance of alternative choices to be measured. Factors used in decision-making are broken down by AHP into a hierarchy of factors. For each factor, several sub-factors will exist. Face-to-face survey interviews are used for the AHP surveys. This allows the responses made to the survey questions to be more reliable, as the researcher, during the interview, can define what each of the factors and sub-factors are and answer questions by the interviewee about the AHP methodology. In order not to influence the respondent's answers, the definitions and a description of the AHP methodology were provided to the interviewee, in hard copy, before the interview. The researcher only referred to these definitions and description when the interviewee asked a question and provided no additional information; thus avoiding interview bias.

In the interviews, respondents were asked to rank the importance of each factor over the other factors and each sub-factor over the other sub-factors. This is done by placing the factors and sub-factors into pairs. Respondents then rank the relative importance of each pair of factors or sub-factors using a nine point rating scale. Weightings for each of the factors and sub-factors are then generated through the AHP analysis process. This allows the importance of each factor and sub-factor to be comprehensively compared to the importance of the other factors and sub-factors. An aggregate weight for each factor and sub-factor is calculated from the respondents' factor and sub-factor weights. The aggregate weights are then used to make a direct comparison of the factors and sub-factors and establish their relative importance. Figure 1.2 summarises the ranking process under AHP.

Figure 1.2 Ranking Using the Analytic Hierarchy Process (AHP)



The AHP weightings were subjected to tests to confirm if statistical differences existed between the responses by the sub-groups and if statistical relationships existed between any of the factors or sub-factors. To test for statistical differences between the sub-group responses, Analysis of Variance (ANOVA) and least squares difference test (LSD) were used. Spearman rank correlation was used to identify if the responses on the factors and sub-factors moved independently against each other.

1.5 Limitations

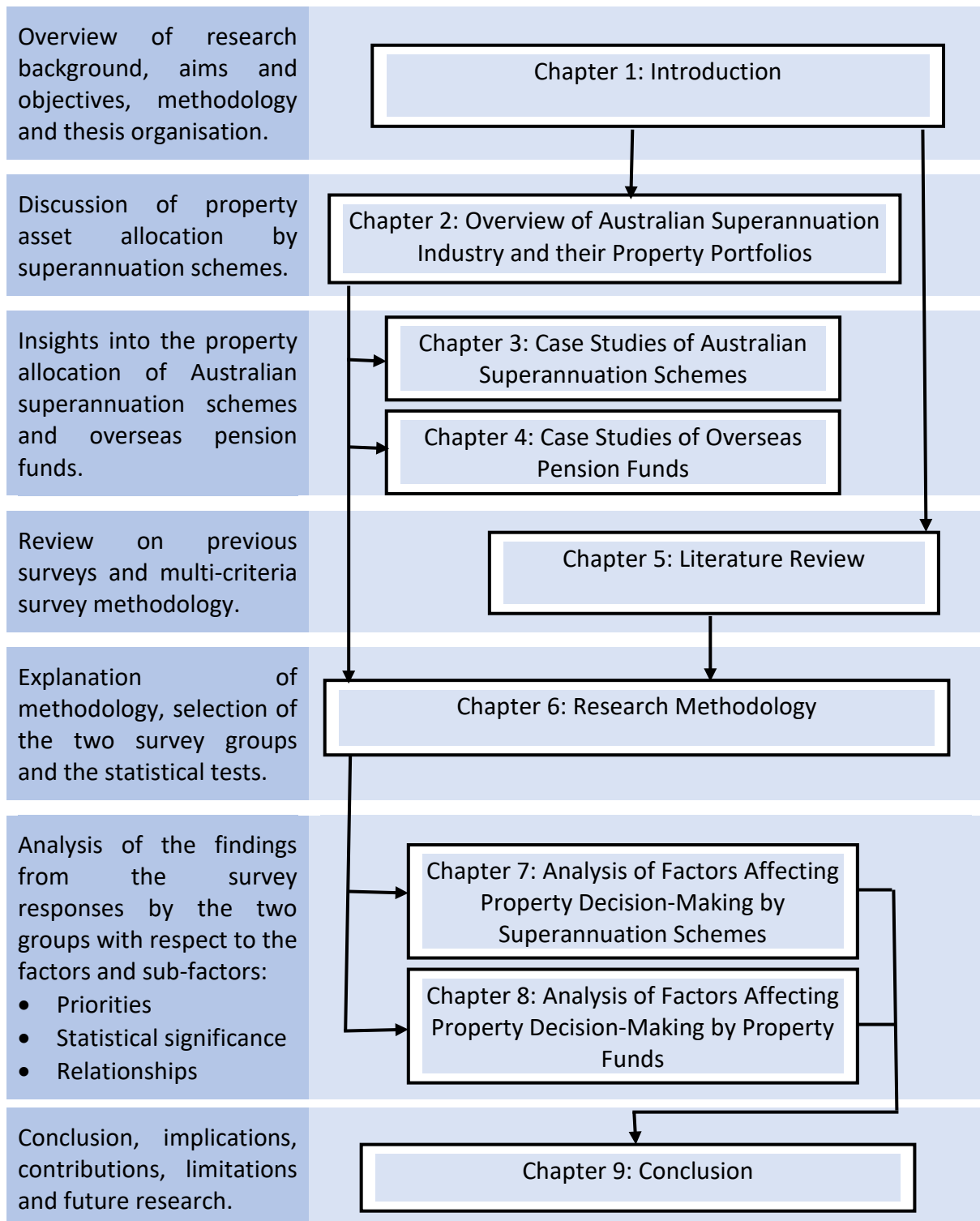
There are some limitations to the findings of the research in this thesis. Firstly, the use of interview surveys limited the sample size and secondly, the survey responses were collected over a six-month period. Completing the surveys by face-to-face interviews ensured respondents clearly understood the questions being asked and the factors and sub-factors they were being asked to assess. It also allowed the respondents to provide additional comments on property investments. Time and travel restrictions on the research meant the sample size was restricted. However, the multi-criteria decision-making model used, AHP, has been shown to be suitable for small samples.

Like any survey on decision-making, the responses are reflective of the current environment. Consequently, while the research findings can identify changes that have occurred since previous surveys were undertaken, their suitability to provide a definite generalisation on decision-making might only apply to the current environment. Future research is needed to support the findings as being consistent over time.

1.6 Thesis Layout and Structure

This thesis attempts to identify the main criteria used by Australian superannuation schemes in their decision-making on property investment. In order to do this, the background of the Australian superannuation industry needs to be explained. Descriptive examples of property allocation strategies by pension funds in Australian and overseas also need to be provided. This allows the importance of property to pension funds to be understood. Once the main criteria have been identified, an analysis of why they are the main criteria needs to take place. Consequently, the layout and structure of the thesis are as follows (see Figure 1.3):

Figure 1.3 Structure of Thesis



Chapter 2 delivers an in-depth summary of the Australian superannuation industry. It shows the significance of property as a key asset and the level of exposure to different types of property vehicles by the superannuation schemes. The compulsory nature of superannuation in Australia and how this has led to a steady growth in the level of AUM, and consequently total property AUM, held by superannuation schemes is discussed. The total AUM and total property AUM is

broken down into the amounts held by corporate, industry, public sector and retail superannuation schemes. The average asset allocation to property and allocations to listed property and unlisted property, by these four types of schemes, are also analysed. The use of property funds and asset consultants by superannuation schemes to invest in property is also covered, along with information on the largest property funds in Australia. Quantitative analysis is used in this chapter to provide statistical proof for the summary.

While Chapter 2 provides a general background on the superannuation industry in Australia, Chapters 3 and 4 undertake case studies on individual pension funds. Chapter 3 illustrates the property exposure and property allocation strategies of ten Australian superannuation schemes. In order to obtain an insight into the average exposure to property by the superannuation schemes, the case studies are on large, medium and small superannuation schemes. Chapter 4 illustrates the property exposure and property allocation strategies for ten leading overseas pension funds. These pension funds are located in Norway, South Korea, Netherlands, United States, Canada, South Africa, Denmark and Sweden. Similarities and differences between the Australian and overseas pension funds are identified.

A literature review is undertaken in Chapter 5 on previous surveys on property investment decision-making by institutional investors and the survey methodologies that can be used. The findings from this literature review influence the research methodology adopted in Chapter 6.

Chapter 6 describes the multi-criteria decision-making methodology AHP, selection of the survey groups, statistical tests and survey process used in the thesis. AHP allows the relative importance of factors and sub-factors influencing decision-making to be measured. Two survey groups will be used, a sample of Australian superannuation schemes and a sample of Australian property fund managers that invest on behalf of these superannuation schemes. This enables the issues to be assessed through two different lenses; institutional investors and property fund managers. The responses to the surveys by the two groups are analysed in Chapters 7 and 8.

Chapter 7 analyses the factor and sub-factor priorities for the superannuation schemes surveyed. This is done for the whole sample, as well as sub-groups within the sample. The factor and sub-factor priorities for the property fund managers are analysed in Chapter 8 for the whole sample and, like chapter 7, sub-groups that were identified to exist. Statistical tests are undertaken in both Chapters 7 and 8 to establish whether the relative importance of the factors and sub-factors is statistically significant and whether any correlation exists between the factors and sub-factors.

The thesis finishes with Chapter 9 providing a summary, conclusion and recommendations from the thesis findings. The main factors used in decision-making on property investment by the survey groups are summarised. A conclusion on how this research has contributed to the knowledge on strategic decision-making for property investing by institutional investors will then be provided. Finally, several recommendations will be put forward for future research.

CHAPTER 2

OVERVIEW OF THE SUPERANNUATION INDUSTRY AND THEIR PROPERTY PORTFOLIOS

Chapter 2 provides an overview of the superannuation industry in Australia and the level of property investment by superannuation schemes. The use of direct property and property funds by the superannuation schemes is also discussed.

2.1 Introduction

Globally, the level of assets held by pension funds has grown considerably over the last decade. According to Willis Towers Watson (2018 p.2), pension markets across the world held USD 41 trillion in assets at the yearend 2017. This is an increase of 4.5% per annum since 2007. The seven largest pension markets are responsible for 84% of these assets. Of these seven, the largest pension market is in the United States (USD 25 trillion, 61%), followed by the United Kingdom (USD 3.1 trillion, 7.5%), Japan (USD 3 trillion, 7%), Australia (USD 1.9 trillion, 4.7%), Canada (USD 1.8 trillion, 4.3%), Netherlands (USD 1.6 trillion, 3.9%), and then Switzerland (USD 0.9 trillion, 2.2%).

Positive returns on the invested assets, as well as an increase in the level of contributions made to funds, have been the main reasons behind this growth (OECD, 2017 pp. 10-11). Ageing demographics across most countries has seen governments implement pension policies to stimulate long-term savings that people can access when they retire. As a result, the number of countries with mandatory pension plans or supported voluntary private pension plans has increased substantially. The pension fund assets in most countries have grown at a faster rate than their gross domestic product (GDP), with the ratio of pension assets to GDP being close to or above 100% for the seven largest pension markets (OECD, 2017 pp. 6-8).

Some of the largest pension funds in the world, according to their assets under management (AUM), are listed in Table 2.1 (Willis Towers Watson, 2017). While the largest fund, the Japanese sovereign fund Government Pension Investment Fund (GPIF), did not invest in property before 2018¹, many of the others do. Their investment strategies place higher weights on equity and fixed interest. However, their asset allocation to property tends to be substantial; for example, ABP (9.8%), CalPERS (8.6%), Canada Pension (12.9%) and Ontario Teachers (13.8%).

In Australia, the fourth largest pension market, pension funds are known as superannuation schemes. The largest non-sovereign scheme in Australia is Australian Super² and it is ranked by Willis Towers Watson (2017) as the #36 largest pension

¹ From September 2018, GPIF have established small mandates in property.

² The Future Fund is the Australian sovereign wealth fund and according to Willis Tower Watson held USD \$92 billion in AUM, while Australian Super had USD\$78 billion AUM as of yearend 2016.

fund globally. Three others, QSuper (#72), First State Super (#90), and UniSuper (#92), are amongst the largest 100 pension funds. All four of these schemes invest in property. This chapter will provide an analysis of the retirement income system in Australia; the level of funds held by Australian superannuation schemes; and their investment in property.

Table 2.1 Largest Pension Funds Globally: Year Ended 2016

Pension Fund³	Country	AUM USD billion	Global Rank
Government Pension Investment (S)	Japan	1,237	#1
Government Pension Fund (S)	Norway	893	#2
Federal Retirement Thrift	US	486	#3
National Pension (S)	South Korea	462	#4
ABP	Netherlands	404	#5
National Social Security (S)	China	349	#6
CalPERS	US	307	#7
Canada Pension (S)	Canada	236	#8
Central Provident Fund (S)	Singapore	227	#9
PFZW	Netherlands	196	#10
<i>Other:</i>			
Local Government Officials	Japan	183	#13
Employees Provident Fund	Malaysia	165	#15
Ontario Teachers	Canada	140	#18
GEPF (S)	South Africa	119	#19
ATP	Denmark	113	#20
Employees' Provident	India	110	#21
Alecta	Sweden	84	#34
Australian Super	Australia	78	#36
BT Group	UK	63	#56

Source: Willis Towers Watson (2017)

³ (S) indicates they are a sovereign pension.

2.2 Retirement Income System in Australia

In Australia, it has been compulsory for workers to contribute to a superannuation scheme since 1992. Whilst superannuation schemes have existed in Australia for over a century, prior to 1992 access to these schemes was only available to employees in a few professions. Since the introduction of compulsory superannuation, the level of superannuation funds under management has increased substantially. In addition to the positive returns on the invested assets, this increase can also be attributed to increases in the compulsory contribution percentage, workforce size, average wages and the tax benefits allowed by the government on superannuation savings (Clare, 2017 p. 18).

In September 2017, Australian superannuation schemes managed around \$2.3 trillion worth of assets, which is significantly larger than the \$321 billion they managed in 1997. Since 1997, all superannuation schemes have been prudentially regulated by the Australian Prudential Regulation Authority (APRA) (Commonwealth of Australia, 2016 pp. 14-15)⁴. Forecasters have estimated that by 2030, superannuation schemes will be managing close to \$4 trillion in assets (Actuaries Institute, 2015 p. 15). Treasury (2010 p.7) claims that superannuation is the largest source of long term savings by Australians. In addition, for a lot of Australians, it is their second largest source of wealth, with ownership of their own home being their largest source of wealth.

The large level of funds held by Australian superannuation schemes along with the fact that workers are unable to receive superannuation payments before retirement (or age 55), means that superannuation schemes benefit from including property in their investment portfolio (Newell, 2008). The long term liability nature of superannuation suggests that superannuation schemes diversify this large amount of funds across asset classes, such as property, that can achieve high returns over the long run and are not highly correlated. The unique characteristics of property, such as its large size, heterogeneity and illiquidity, mean that investments in property can achieve favourable risk-adjusted returns in the long run and hedge against inflation. In addition, the low correlation existing between the return on property and returns generated by other asset classes can allow the portfolio's exposure to risk to be reduced when property is included in the asset portfolio (Francis and Ibbotson, 2001).

2.2.1 Third Pillar of Retirement System

In order to understand the rapid increase in funds managed by Australian superannuation schemes, an analysis will now be undertaken on changes to the Australian retirement income system that have occurred since 1985. Prior to 1986, a two pillar retirement income system existed in Australia. The first pillar was a means tested Age Pension⁵ that people could access once they reached a set age. Voluntary

⁴ APRA was established in 1988 as the Australian supervisor of activities undertaken by financial institutions classified as being authorised deposit taking institutions, insurance offices and superannuation schemes.

⁵ The means test takes into account an individual's other income and assets when determining how much of the Age Pension they will receive.

savings by employees made up the second pillar. For some employees, this voluntary savings occurred through a superannuation scheme set up by their employers. These schemes mainly existed for individuals who worked in the public sector or held managerial positions. Individuals that did not have access to these schemes were attracted to voluntarily save, as there were tax concessions on retirement savings. However, in 1986, only 40% of retired individuals were members of a superannuation scheme and receiving payments from the scheme in retirement (Australian Government Treasury 2008, p.43). Like other developed countries, Australia was experiencing a rapid growth in their aged dependency ratio⁶. The Australian federal government forecasted that in the future, they would be unable to fund the retirement income of all Australians. Any attempt to provide the funding required would result in a burden on future tax payers that would be unsustainable (Robinson, 1992 p. 8). Consequently, a third pillar was added in 1986 to the retirement income system. This third pillar is a compulsory saving component that requires all employees to be a member of a superannuation scheme and make regular contributions to the scheme.

Initially, the compulsory saving component required employers to place 3 per cent of an employee's before tax salary into a superannuation scheme. Tax incentives were introduced in 1988 to make contributions to superannuation schemes more attractive. Contributions to superannuation and the investment income earned on these contributions are only taxed at 15 per cent. This made superannuation significantly more attractive to income earners subject to higher income tax rates under Australia's progressive personal income tax rates. The highest tax rate in 1988 being 47% for any income over \$50,000. By mid-1991, the introduction of the third pillar saw 79 per cent of all employees being covered by superannuation (Robinson, 1992 p. 10). In 1992, the Superannuation Guarantee Charge (SGC) was implemented and made it compulsory for all people in the Australian workforce to contribute to a superannuation scheme. The percentage of before tax salary that must be contributed to superannuation has increased in intervals from the initial 3 per cent to be 9.5 per cent since 2015/2016⁷. Increases in the SGC rate has been one of the reasons behind the growth in assets under management (AUM) held by superannuation schemes since it was introduced.

Individuals can also make additional voluntary contributions to their superannuation scheme and receive the tax benefit. However, in 2007, a cap was placed on these additional contributions. Between 2007 and 2013, the excess contribution was taxed at 31.5%. Since 2014, any contribution that exceeds the cap has been taxed at the contributor's personal income tax rates. For the financial year 2017/18, the concessional cap was set at \$25,000 for any additional contributions above the 9.5 per cent compulsory contribution (Power, 2018)⁸.

⁶ The aged dependency ratio is the ratio of dependents to the working age population. Dependents are typically people aged younger than 15 and older than 64.

⁷ It will stay at this level until June 2021.

⁸ In 2007, individuals older than 50 could contribute up to \$100,000 and individuals younger than 50 up to \$50,000. These concessional contribution caps have consistently declined to be \$25,000 for all age groups in 2017/18.

2.2.2 Forms of Superannuation Schemes

In Australia, superannuation schemes can be defined benefit, defined contribution (also known as accumulation) or a combination of both. Defined benefit schemes give an explicit guarantee to members that on retirement, they will receive a defined benefit. This benefit is typically based on a formula that takes into account factors such as the contributor's average salary before retirement; years of employment; and age. Consequently, regardless of the return on their invested contributions; the retirement benefit to members would be a known terminal value. On the other hand, in a defined contribution scheme, while the contribution is defined, the terminal value of the retirement benefit to members depends on the return on their contributions invested by the fund. This means the risk of the investments made by the superannuation scheme is borne by the members. For defined benefit, the investment risk falls on the fund (APRA, 2007 p.5). A concern about defined benefit funds is the strength of the explicit guarantee and whether the return on the invested contributions will always be able to fully fund the defined retirement benefit. Prior to 1985, most Australian superannuation schemes were defined benefit schemes. Many of the defined benefit schemes for government employees were only partly funded (Super System Review: Final Report, 2010 p. 5). Today, the majority of superannuation schemes in Australia are defined contribution. Willis Towers Watson (2018, p.12) report that defined contribution now make up 87% of all superannuation funds in Australia, which is considerably more than in other countries. On average, 49% of the pension funds in the seven largest pension markets are defined contribution, with 60% of pension funds in the United States being defined contribution, while in Japan only 4% are defined contribution.

There are several types of superannuation schemes in Australia. Schemes that have more than four members are regulated by APRA. These funds can be classified as either retail, industry, public sector or corporate (Commonwealth of Australia, 2016 pp. 30-32):

- Industry – These are not-for-profit schemes whose members are employed in a particular industry. The larger industry schemes allow anyone to become a member of their scheme. Examples are TWU Superannuation Fund; AustralianSuper; The Transport Industry; Construction and Building Unions (CBUS); and Equisuper.
- Public Sector – These are not-for-profit schemes whose members are mainly employed by a state or federal government body. A small number of Public Sector schemes are exempt from regulation by APRA as they are regulated under other government regulations and are typically closed to new members. Examples are WA Local Government; CSS Fund; Energy Industries Superannuation; Victorian Superannuation Fund; and Local Government Superannuation.
- Corporate - These are not-for-profit schemes whose members are employed by a particular company. Examples are ANZ Australian Staff; Telstra Super; Qantas Super; Water Corporation Superannuation; Toyota Super; The Paragon Superannuation Fund; and Goldman Sachs and JBWere.

- Retail - These are for-profit schemes that are owned by financial institutions. Part of the return on the investments made using members' contributions are paid as dividends to shareholders of the financial institutions. Examples are ASGARD; Zurich Master Superannuation; Ultimate Superannuation Fund; Crescent Wealth Superannuation; and HHH Superannuation Fund.

All APRA regulated schemes operate under the trusteeship of a Responsible Superannuation Entity licence⁹. APRA also regulates two types of schemes that have less than four members. These are single member Approved Deposit Funds and small APRA schemes¹⁰. The remaining type of scheme is regulated by the Australian Tax Office (ATO) and is called a self-managed superannuation fund (SMSF). A SMSF can have up to four members, with all members being a trustee (Commonwealth of Australia, 2016 p. 30-31).

Before 2005, individuals had very little control over what superannuation scheme their employer placed their contributions into. Since July 2005, individuals have been able to choose the superannuation scheme that they are a member of. That is unless the contributions came under a certified or workplace agreement, state award, industrial agreement or the employer is a sponsor of a defined benefit scheme (Australian Taxation Office, 2005). However, although this means that individuals can request their employer places their contribution in any industry scheme or retail scheme, most allow their employer to choose the scheme.

2.3 Level of Funds Managed by Australian Superannuation Schemes

The \$2.3 trillion held by Australian superannuation schemes at September 2017 can be categorised in terms of the different types of funds. Table 2.2 shows the AUM held by each type of scheme as of September 2015 and 2017 (APRA, 2018a)¹¹.

Table 2.2 AUM Held by the Different Types of APRA Regulated Schemes

<i>Type of Scheme</i>	<i>Sept 2017</i>		<i>Sept 2015</i>	
	<i>\$bln</i>		<i>\$bln</i>	
Corporate	53.1	2.35%	53.6	2.68%
Industry	560.8	23.45%	431.3	21.59%
Public sector	430.2	17.99%	339.9	17.01%
Retail	590.8	24.71%	526.3	26.34%
Total of Schemes with more than 4 members	1635	68.37%	1351.12	67.63%
APRA regulated with less than 4 members	2.1	0.09%	2.0	0.10%
SMSF	699.5	29.25%	588.8	29.47%
Balance of life statutory funds	54.7	2.29%	55.7	2.79%
Total	23912.3	100%	1997.8	100%

Source: Key Statistics in APRA (2018b)

As at September 2017, SMSFs held the largest share of AUM in the industry. They held 30%, while the APRA regulated schemes held 68%. Of the APRA regulated

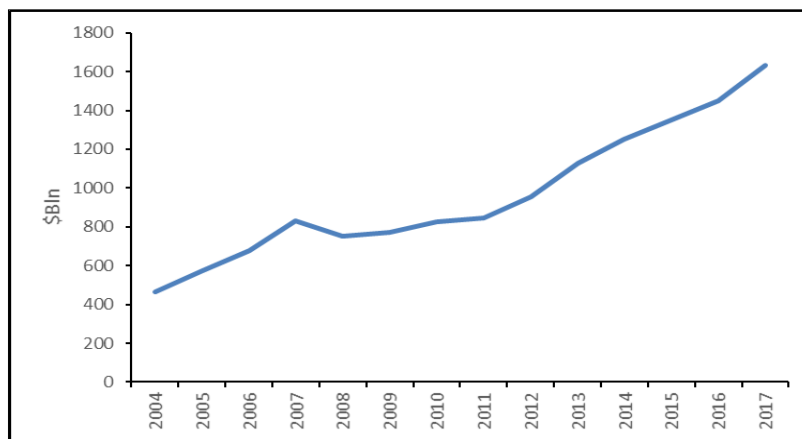
⁹ Superannuation Industry (Supervision) Act 1993 (Cwlth) (SIS Act).

¹⁰ In these schemes, the members are not trustees.

¹¹ Historical data is not available prior to 2015 for the schemes with less than four members.

schemes, the retail schemes held the largest share at 25%, closely followed by industry schemes with 23%. Industry schemes, supported by the Australian Council of Trade Unions and union and employer associations, have been in existence for several decades and offer their employees competitive returns and lower fees on their superannuation contributions when compared with corporate and retail schemes (Industry Super Australia, 2016 p.12). This explains the significantly larger share of AUM held by industry schemes. The public sector schemes held a 17% market share, while corporate schemes only held a very small share at 3%. This small share is consistent with the low number of Australian companies that currently administer a separate superannuation scheme for their employees. Figure 2.1 shows the increase in AUM held by the four main types of APRA regulated schemes from 2004 to 2017, with the current level being close to \$1.6 trillion (APRA, 2018c)¹².

Figure 2.1 AUM of APRA Regulated Superannuation Schemes (\$bln)¹³



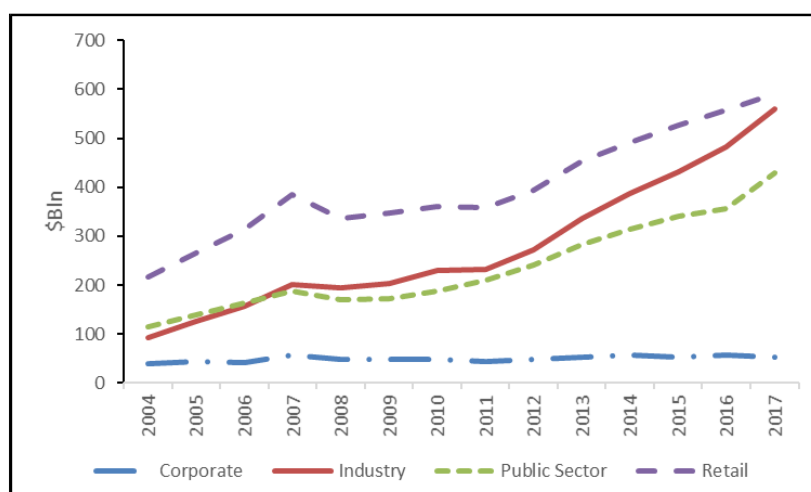
Source: Based on statistics in APRA (2018c)

A decline in the AUM occurred in 2007, due to the negative impact of the global financial crisis. However, since then, the AUM have been increasing steadily. Figure 2.2 breaks down the AUM into the amounts held by each of the four types of APRA regulated schemes from 2004 to 2017 (APRA, 2018d).

¹² Data on AUM held by SMSF for the same period is not available.

¹³ Prior to September 2013, the AUM is for entities with at least \$50 million in assets and since September 2013, due to changes in APRA's reporting framework, the AUM are for schemes with more than 4 members.

Figure 2.2 AUM of the Types of APRA Regulated Superannuation Schemes (\$bIn)



Source: Based on statistics in APRA (2018d)

A comparison of the change in AUM and numbers of entities is made in Table 2.3 for the four types of APRA regulated schemes at roughly four yearly intervals (APRA, 2017d). The amount of AUM held by retail schemes, industry schemes and public sector schemes have all increased substantially since 2004. The AUM held by industry schemes more than quadrupled with an increase of 504%, while for public sector schemes, AUM doubled increasing by 271% and the AUM of retail schemes increased by 172%. On the other hand, the AUM for the corporate schemes, only increased by 32%. This is due to a large number of corporate schemes closing down over the last decade and a half. Companies had found the costs and obligations associated with providing a superannuation scheme for their employees excessive. These closures saw AUM held by corporate schemes between 2016 and 2017 decreasing by 6%. During the same period, the AUM of industry schemes, public sector schemes and retail schemes increased by 16%, 21% and 6%, respectively.

Table 2.3 AUM and Number of APRA Regulated Superannuation Schemes

	<i>Assets (\$bIn)</i>				
	2004	2009	2013	2017	%Δ 2004-17
Corporate	40.4	47.9	52.8	53.1	31.44
Industry	92.8	202.5	335.8	560.8	504.31
Public sector	115.8	172.6	283.8	430.2	271.50
Retail	216.9	346.5	454.4	590.8	172.38
Total	573.9	769.7	1126.9	1634.9	184.88
	<i>Number of Entities</i>				
	2004	2009	2013	2017	%Δ 2004-17
Corporate	112	46	47	24	-78.57
Industry	67	59	46	40	-40.30
Public sector	41	36	40	18	-56.10
Retail	144	135	164	125	-13.19
Total	364	276	297	207	-43.13

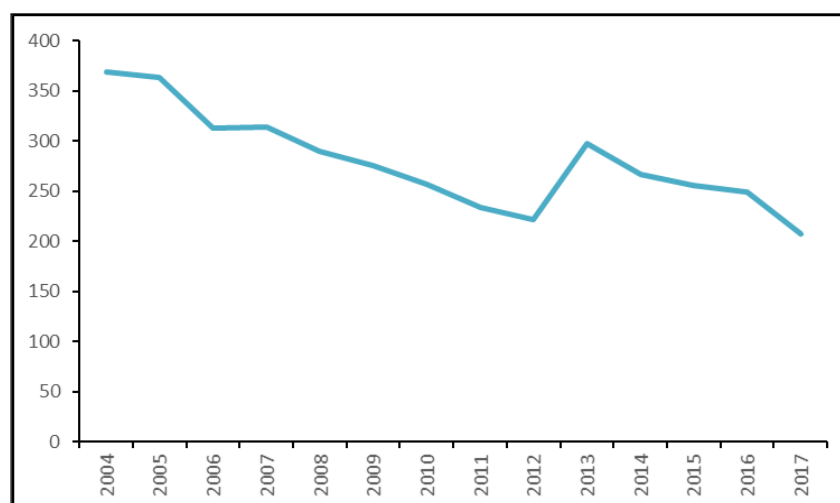
Source: Statistics in APRA (2018d)

While the level of AUM held by the superannuation schemes has been increasing, Table 2.3 shows the number of APRA regulated superannuation schemes have declined¹⁴. The number of retail schemes is considerably higher than the other three types of schemes. So while they hold the largest amount of AUM, on average the AUM for each retail scheme is less than that for the other types of schemes. This is because individual retail schemes are generally small in size, particularly compared to the size of individual industry schemes or public sector schemes. For example, APRA reports that in 2017 the two smallest superannuation schemes, not closed to new members, for each sector were (APRA, 2018a):

- Industry – Concept One The Industry Superannuation Fund (\$510.09m); Club Super (\$541.29m).
- Public Sector – Australian Defence Force Superannuation Fund (\$37.74m); Fire and Emergency Services Superannuation Fund (\$646.19m)
- Corporate – Elphinstone Group Superannuation Fund (\$67.21m); Pitcher Retirement Plan (83.77m).
- Retail – StatePlus Fixed Term Pension Plan (\$7.78m); AIA Superannuation Fund (\$7.85m).

This downward trend is displayed in Figure 2.3 for the total number of schemes and in Figure 2.4 for the four types of APRA regulated superannuation schemes between 2004 and 2017 (APRA, 2018c)¹⁵.

Figure 2.3 Total Number of APRA Regulated Superannuation Schemes

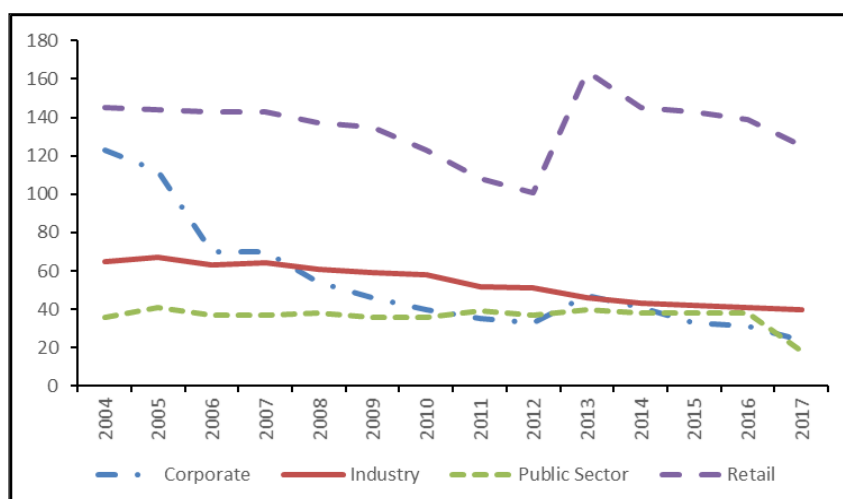


Source: Based on statistics in APRA (2018c)

¹⁴ The number of SMSFs has moved in the opposite direction as a growing number of individuals feel they have the knowledge to manage their own superannuation and the growth in services offering advice on operating SMSFs. In 2016, 557,000 SMSF were in existence which is more than double the 210,000 SMSF in 2001 (Commonwealth of Australia, 2016 p.16).

¹⁵ Data on assets held by SMSF for the same period is not available.

Figure 2.4 Total Number of Types of APRA Regulated Superannuation Schemes



Source: Based on statistics in APRA (2018c)

Over the past decade and a half, the percentage of corporate schemes decreased considerably more than the other types of schemes. Most Australian companies began to stop providing defined benefit schemes for their employees. The small size of these schemes relative to the industry schemes meant they could not be as cost effective. Consequently, a large number closed and their members were transferred into an industry scheme or retail scheme. These closures explain why the AUM of corporate schemes increased by the smallest percentage compared to the other types of schemes. The number of public sector schemes has halved due to mergers between some of the schemes and privatisation of several public sector entities. However, their AUM has increased substantially. Mergers have also taken place between retail schemes and between industry schemes leading to their numbers decreasing. However, their AUM, like the public sector schemes, have also increased significantly¹⁶.

The twenty major superannuation schemes in Australia at June 2017 are listed in Table 2.4 (APRA 2018a). As at June 2017, their AUM exceeded \$1.12 trillion.

¹⁶ While mergers allow the schemes to benefit from economies of scale, the ability to merge is subject to regulatory barriers.

Table 2.4 Major Superannuation Schemes in Australia: June 2017

<i>Superannuation Scheme</i>	<i>Type</i>	<i>AUM (bln)</i>
AustralianSuper	Industry	\$123.2
QSuper	Public	\$95.2
MLC Super Fund	Retail	\$77.3
Public Sector Superannuation Scheme	Public	\$75.7
Colonial First State FirstChoice Superannuation Trust	Retail	\$72.1
First State Superannuation Scheme	Public	\$65.9
CSS Fund	Public	\$65.2
Unisuper	Industry	\$63.1
Retirement Wrap	Retail	\$61.7
AMP Superannuation Savings Trust	Retail	\$55.4
Sunsuper Superannuation Fund	Industry	\$47.9
Retail Employees Superannuation Trust	Industry	\$47.8
Military Superannuation & Benefits Fund No 1	Public	\$43.6
Health Employees Superannuation Trust Australia	Industry	\$42.1
Construction & Building Unions Superannuation	Industry	\$40.3
OnePath Masterfund	Retail	\$36.2
Wealth Personal Superannuation and Pension Fund	Retail	\$34.9
IOOF Portfolio Service Superannuation Fund	Retail	\$25.8
HOSTPLUS Superannuation Fund	Industry	\$25.4
Mercer Super Trust	Retail	\$22.6

Source: Statistics in APRA (2018a)

Seven are industry schemes, five public sector schemes and eight are retail schemes. Australian Super (\$123 billion), Unisuper (\$63.1 billion) and Sunsuper (\$47.9 billion) are the leading industry schemes, while QSuper (\$95.2 billion), First State Superannuation Scheme (\$65.9 billion) and CSS Fund (\$65.2 billion) are the leading public sector schemes. The retail sub-sector is dominated by MLC Super Fund (\$77.5 billion), Colonial First State (\$72.1 billion), Retirement Wrap (\$61.7 billion) and AMP Superannuation Savings Trust (\$55.4 billion). The largest corporate scheme, Telstra with AUM of \$19.99 billion, is the twenty second largest Australian superannuation scheme. The next five largest corporate schemes are Commonwealth Bank Group Super (#29, \$11.1 billion); Qantas Superannuation Plan (#42, \$7.8 billion); Rio Tinto Staff Superannuation Fund (#51, \$5.7); ANZ Australian Staff Superannuation Fund (#58, \$4.2 billion); and Alcoa of Australian Retirement Plan (#79, \$2.1 billion). The smaller size of the largest corporate scheme relative to the largest industry scheme, retail scheme and public sector scheme is consistent

with the membership of corporate schemes being limited to employees of the same company.

2.4 Property in Australian Superannuation Schemes

In June 2017, the average asset allocation of Australian superannuation schemes was equity (50.3%), fixed interest (21.4%), cash (11.5%), **property (8.2%)**, infrastructure (5.0%), and other (3.6%) (APRA, 2018d)^{17,18}. Typically superannuation schemes will use the range specified in their trust mandate to determine how much of their funds they will invest in each asset class. Table 2.5 shows that there has been no major changes in this asset allocation over the last five years for schemes with more than four members¹⁹. A study by Carruthers (2015, pp. 5-6) reported that between 2006 and 2014, APRA regulated superannuation schemes allocated 7% to 9% of their funds to investing in property. In Table 2.5, the average percentages invested in property since 2014 have stayed within this range.

Table 2.5 Asset Allocation by APRA Regulated Superannuation Schemes

	2013	2014	2015	2016	2017
	\$bln	\$bln	\$bln	\$bln	\$bln
Cash	159.61	164.95	170.48	178.66	180.24
Fixed interest	188.31	241.03	270.65	298.61	334.73
Equity	581.46	623.01	649.09	700.54	787.53
Property	81.19	96.30	115.71	119.98	129.06
Infrastructure	36.46	49.99	60.03	68.65	78.61
Other ²⁰	51.16	45.02	51.63	62.58	56.79
Total	1098.19	1220.29	1317.59	1429.02	1566.96
	2013	2014	2015	2016	2017
	%	%	%	%	%
Cash	14.5	13.5	12.9	12.5	11.5
Fixed interest	17.1	19.8	20.5	20.9	21.4
Equity	52.9	51.1	49.3	49.0	50.3
Property	7.4	7.9	8.8	8.4	8.2
Infrastructure	3.3	4.1	4.6	4.8	5.0
Other	4.7	3.7	3.9	4.4	3.6
Total	100	100	100	100	100

Source: Statistics in APRA (2018d)

In 2017, 92% of the superannuation schemes that provided APRA with statistics indicated that they invested in property (APRA, 2018a). This is a 7% increase from 2004, when 85% of the superannuation schemes reported an asset allocation to property (APRA, 2010). Whilst not all the schemes invest in property,

¹⁷ Total investments are total assets less tax assets and other assets.

¹⁸ These percentages are calculated from the statistics provided to APRA by 198 of the 207 superannuation schemes which they regulate. The other nine schemes requested that their data was not released publicly. Changes in APRA's reporting framework in 2015 prevented earlier data from being used.

¹⁹ Prior to 2013 the statistics were gathered from schemes with more than \$50 million AUM.

²⁰ Other is made up of commodities, hedge funds and other alternative assets.

the finding that the majority do implies that property is a key asset class for Australian superannuation schemes. Size is the main reason behind why superannuation schemes do not invest in property. The AUM of a small superannuation scheme are not sufficient enough to invest in property. Another key reason is their limited experience in property investment. In a mixed-asset portfolio, property has strong diversification benefits due to its low correlation with the other asset classes (Reddy, 2016 pp.9-10)

The different types of APRA regulated superannuation schemes diverge slightly in their asset allocations. Table 2.6 provides the asset allocations of the four types of schemes as at September 2017 (APRA, 2018d). The property asset class is made up of listed property and unlisted property. Industry schemes hold the largest amount of property of all the sub-groups and the highest allocation to property at 9.8%. Retail schemes are the largest sub-group based on AUM, but hold the second largest AUM amount in property. This is reflected in their allocation to property being only 6.3%, which is the lowest allocation of all four sub-groups. It is also less than the average range of 7% to 9% invested in property by superannuation schemes in general. The public sector schemes and corporate schemes allocate a similar amount to property investment, 8.9% and 8.8% respectively. This is only 1% less than the allocation of the industry schemes, but over 2% more than the retail schemes.

Table 2.6 Asset Allocation by Type of Fund: September 2017

	Corporate	Industry	Public	Retail
	<i>\$bln</i>	<i>\$bln</i>	<i>\$bln</i>	<i>\$bln</i>
Cash	4.83	54.23	39.85	81.33
Fixed interest	14.51	99.37	89.49	131.36
Equity	26.32	281.87	177.88	303.50
Property	4.62	53.93	33.57	36.94
Infrastructure	1.80	48.66	17.51	10.64
Other	2.17	11.45	17.72	25.45
Total	52.21	549.50	376.03	589.22
	Corporate	Industry	Public	Retail
	%	%	%	%
Cash	9.3	9.9	10.6	13.8
Fixed interest	27.8	18.1	23.8	22.3
Equity	50.4	51.3	47.3	51.5
Property	8.8	9.8	8.9	6.3
Infrastructure	3.4	8.9	4.7	1.8
Other	4.2	2.1	4.7	4.3
Total	100	100	100	100

Source: Statistics in APRA (2018d)

A fund's mandate can influence their asset allocation by requiring the investment managers adopt particular investment styles; conservative, balanced or growth, reflecting their risk appetite. However, the majority of Australian superannuation schemes offer their members the opportunity to invest in portfolios across the full range of investment styles. So, investment style might not be a major

influence on their overall asset allocation to property. Instead their long-term strategies to achieve the best returns for all their members could be more of an influence. The lower level of investment in property, on average, by retail schemes reflects their small size relative to most other schemes. They hold insufficient funds to invest in a large property portfolio. So they are exposed to a significant degree of liquidity and concentration risk issues when they invest in property.

Table 2.7 lists the twenty superannuation schemes, as at June 2017, that have the largest holdings of property (APRA 2018a). Eighteen of these are in Table 2.4 as being one of the major superannuation schemes in Australia. Two of the public sector funds, CSS Fund and Military Superannuation Fund, are replaced by the corporate scheme Telstra and an industry scheme Care Super.

Table 2.7 Major Superannuation Schemes Investing in Property: June 2017

<i>Superannuation Scheme</i>	<i>Type</i>	<i>Total Property AUM (bln)</i>	<i>Total Property %</i>
AustralianSuper	Industry	\$10.63	8.63%
Unisuper	Industry	\$7.82	12.40%
QSuper	Public	\$5.70	5.99%
First State Superannuation Scheme	Public	\$4.89	7.43%
Sunsuper Superannuation Fund	Industry	\$4.68	9.79%
Construction & Building Unions Superannuation	Industry	\$4.54	11.28%
MLC Super Fund	Retail	\$4.26	5.51%
Retail Employees Superannuation Trust	Industry	\$4.25	8.88%
Retirement Wrap	Retail	\$4.15	6.72%
AMP Superannuation Savings Trust	Retail	\$4.04	7.30%
Health Employees Superannuation Trust Australia	Industry	\$3.79	9.01%
Colonial First State FirstChoice Superannuation Trust	Retail	\$3.72	5.16%
HOSTPLUS Superannuation Fund	Industry	\$3.27	12.88%
Telstra Superannuation Scheme	Corporate	\$2.52	12.58%
OnePath Masterfund	Retail	\$2.41	6.67%
Public Sector Superannuation Scheme	Public	\$2.27	3.00%
Wealth Personal Superannuation and Pension Fund	Retail	\$2.12	6.07%
Care Super	Industry	\$1.70	10.57%
Mercer Super Trust	Retail	\$1.69	7.49%
IOOF Portfolio Service Superannuation Fund	Retail	\$1.67	6.48%

Source: Statistics in APRA (2018a)

HOSTPlus Superannuation Fund (12.88%) has the highest asset allocation to property, closely followed by Telstra (12.58%) and UniSuper (12.40%). The allocation by the industry schemes ranges from 8.63% (Australian Super) to 12.88% (HostPlus Superannuation Fund); for the retail schemes, the range is from 5.16% (Colonial First State) to 7.49% (Mercer Super Trust); for the public sector schemes, it is 3% (Public Sector Superannuation Fund) to 7.43% (First State Superannuation Scheme); and the only corporate scheme on the list, Telstra Superannuation Scheme, allocates 12.58%. APRA statistics and Australian studies show that the typical allocation by Australian superannuation schemes to property over the last three decades is, on average, between 5% and 10% (Reddy, Higgins and Wakefield, 2014 p. 289).

The allocation by the superannuation schemes to property is separated in Table 2.8 to the amounts invested in unlisted property and listed property (APRA, 2018d). Listed property being investments in listed property trusts (REITs)²¹ and unlisted property being directly held property and wholesale unlisted property funds²². Due to the change in APRA's reporting framework in 2013, a comparison of the allocations can only be made since 2013. In addition, APRA no longer provides the allocation to listed property and unlisted property by individual superannuation schemes. In recent years, there has been an increased focus on direct property (via separate accounts) rather than funds in the unlisted space, as the larger superannuation schemes want a higher level of control over their property exposure.

Table 2.8 Allocation to Listed and Unlisted Property

	2013	2014	2015	2016	2017
	\$bln	\$bln	\$bln	\$bln	\$bln
Listed property	27.15	36.15	42.25	50.77	50.15
Unlisted property	54.05	60.15	73.46	69.21	78.91
Total	81.20	96.30	115.71	119.98	129.06
	2013	2014	2015	2016	2017
	%	%	%	%	%
Listed property	2.5	3.0	3.2	3.6	3.2
Unlisted property	4.9	4.9	5.6	4.8	5.0
Total	7.4	7.9	8.8	8.4	8.2

Source: Statistics in APRA (2018d)

The allocations show that there is roughly a 40%/60% relative split between listed property and unlisted property. The data available from APRA for years prior to 2013 show that on average, superannuation schemes have always invested a greater proportion of their property portfolio in unlisted property. However, Table 2.9 shows that in 2017, retail schemes focused more on listed property, with a relative split of 80%/20% between listed property and unlisted property. In contrast the relative split for corporate schemes was 20%/80%, industry schemes 20%/80% and public sector schemes 27%/73%. This is reflective of most retail schemes being

²¹ REITS is the acronym for real estate investment trusts.

²² APRA statistics have not been available for the breakdown of unlisted property into direct property and unlisted property funds since 2013.

substantially smaller than other schemes and their need for more liquidity. They often lack the funds to minimise the greater liquidity and concentration risk associated with investing in unlisted property.

Table 2.9 Listed and Unlisted Property by Type of Scheme: September 2017

	Corporate	Industry	Public	Retail	Total
	<i>\$bln</i>	<i>\$bln</i>	<i>\$bln</i>	<i>\$bln</i>	<i>\$bln</i>
Listed	0.95	11.06	8.86	29.29	50.15
Unlisted	3.67	42.87	24.71	7.66	78.91
Total	4.62	53.93	33.57	36.94	129.06
	Corporate	Industry	Public	Retail	Total
	%	%	%	%	%
Listed	1.8	2.0	2.4	5.0	3.2
Unlisted	7.0	7.8	6.5	1.3	5.0
Total	8.8	9.8	8.9	6.3	8.2

Source: Statistics in APRA (2018d)

Very little has changed over the past five years. In 2012, the mix of listed and unlisted property was very similar to the 2017 mix; retail schemes (4% listed, 2% unlisted), industry schemes (1% listed, 10% unlisted); corporate schemes (1% listed, 7% unlisted) and public sector schemes (4% listed, 6% unlisted) (APRA 2012).

2.5 Superannuation Schemes Investing in Direct Property

The large amount of funds required to invest in direct property prevents some Australian superannuation schemes from holding a diversified direct property portfolio. Only a few of the superannuation schemes, such as AustralianSuper, hold a sufficient level of funds to successfully invest in direct property. Consequently, most superannuation schemes invest in property through property funds. Unlisted property funds and property syndicates allow superannuation schemes to be exposed to direct property without the liquidity restrictions that occur when holding a concentrated portfolio of direct property. Newell (2007) showed how typically the larger/medium sized industry schemes invested in property through unlisted wholesale property funds. They do this to achieve diversification and stability for their property portfolio. The establishment of ISPT in 1994 by three industry superannuation funds, Australian Super, Cbus and HESTA, is an example of how the industry funds want exposure to direct property, but do not have sufficient funds to successfully do this on their own. In 2017, ISPT invested in direct property on the behalf of 31 institutional investors, mainly industry superannuation schemes and some public sector superannuation schemes and investment funds. The investors are Australian Super; Cbus; Hesta; AMIST Super; Ausbil; Australian Catholic Superannuation Retirement Fund; Australian Construction Industry Redundancy Trust; Building Employees Redundancy Trust; CareSuper; Catholic Super; Club Plus Superannuation; Club Super; ESS Super; First Super; Hostplus; LUCRF Super; Media Super; Anglican Funds; Mercy Super; Mine Super; NGS Super; Qiec Super; Rei Super; Statewide Super; Transport Accident Commission; TWU Super; Uni Super; The University of Melbourne; Vision Super; Victoria Managed Insurance Authority; and

Work Safe Victoria. As at 30 June 2017, ISPT held AUM of \$14.1 billion in six property funds investing in office, retail and industrial property (ISPT, 2017).

The trust mandates of superannuation schemes often require them to use asset consultants and external advisors when making property investment decisions; typically the smaller superannuation schemes without property exposure. Some of the larger Australian superannuation schemes can afford to have their own internal property investment teams, so they often don't require this advice. However, the majority of schemes cannot afford this and use the advice from asset consultants and external advisors in their strategic property allocation and property investment decisions (Reddy, Higgins and Wakefield, 2014 p. 284). The advice typically provides recommendations on the property funds that they should consider investing in. The major asset consultants in Australia advising superannuation schemes are Mercer, JANA, Willis Towers Watson and Frontier Advisors.

Property Investment Research (PIR) annually surveys the major property funds in Australia. In 2017, they surveyed 77 property funds management organisations. The top ten unlisted wholesale property fund managers, as at yearend 2016, are listed in Table 2.10 (PIR, 2018 p.19).

Table 2.10 Ten Major Unlisted Wholesale Property Funds: December 2016

<i>Fund Manager</i>	<i>Total AUM (bln)</i>	<i>% of Total sector</i>
Goodman Group	\$25.8	18%
Lend Lease Real Estate Investments	\$24.3	17%
AMP Capital Investors	\$20.0	14%
QIC Real Estate Funds	\$16.2	11%
DEXUS Property Group	\$14.2	10%
ISPT Pty Limited	\$13.1	9%
GPT Group (The)	\$10.5	7%
Charter Hall Group	\$5.1	3%
Investa Property Group	\$4.5	3%
Challenger	\$4.1	3%
Total	\$137.9	94%

Source: Statistics in PIR (2018)

The investors in these funds are institutional investors, with very large institutions managing the funds. The sum of the top ten total AUM is \$138 billion which is 94% of the total AUM of all the surveyed unlisted wholesale property funds. This sector includes unlisted wholesale funds as well as direct property mandates.

The AUM of each of these ten funds exceeds the total amount invested in property by individual superannuation schemes in Australia. The ranking order of the five largest in 2017 is the same as in 2016. The largest property fund is Goodman Group, followed by Lend Lease Real Estate Investments and AMP Capital Investors. The total AUM of all three is more than four times the AUM of the eighth, ninth and tenth largest property funds, Charter Hall Group, Investa Property Group and Challenger.

PIR reports that since the GFC, the AUM of the property funds surveyed every year have been increasing. For the unlisted wholesale property funds, this has been due to property funds regarding management of unlisted wholesale funds as a growth area and superannuation schemes finding property as attractive compared to other asset classes, such as fixed income and equity. Two reasons behind this are firstly stability in property valuation compared to high volatility in the equity market. Secondly, the current low interest rate environment (PIR, 2018, p.12). This should see superannuation schemes maintain or even allocate more of their funds to property going forward.

Superannuation schemes are able to get exposure to listed property by investing with property security funds. Property security funds invest in the listed property space; e.g. real estate investment trusts (REITs). Table 2.11 names the ten largest property securities fund managers, as at yearend 2016, in Australia (PIR, 2018 p. 19).

Table 2.11 Ten Major Property Securities Fund Managers: December 2016

<i>Fund Manager</i>	<i>Total AUM (bln)</i>	<i>% of Total sector</i>
Vanguard Investments Australian	\$7.42	36%
AMP Capital Investors Limited	\$7.00	34%
Colonial First State Investments	\$1.89	9%
APN Funds Management Limited	\$1.54	7%
Franklin Templeton Investments Australia Limited	\$1.34	6%
Renaissance	\$0.68	3%
Cromwell Property Group	\$0.25	1%
Challenger Limited	\$0.24	1%
Legg Mason Asset Management	\$0.16	1%
AIMS Fund Management	\$0.09	0%
Total	\$20.6	99%

Source: Statistics in PIR (2018)

Their total AUM, \$20.6 billion, is 99% of the total AUM of all the surveyed property security funds. The AUM of the seven largest unlisted wholesale property funds are higher than that of the largest property securities fund manager, Vanguard Investments Australian. Furthermore, the three largest unlisted wholesale property funds, have AUM close to three times more than the AUM of Vanguard Investments Australian. Subsequently, most property securities funds are smaller than unlisted wholesale property funds. This reflects the preference by institutional investors, like superannuation schemes, for exposure to unlisted property over listed property. Thus, they are more likely to invest in property through unlisted wholesale property funds than property securities funds. This reflects their already significant exposure to equities or the desire to minimise their exposure to property that captures the equities volatility.

2.6 Summary

Like pension funds globally, the AUM of Australian superannuation schemes have steadily been growing over the last decade. The introduction of compulsory superannuation in Australia, beginning in 1986, means that they receive a constant stream of contributions from their working members to invest. Most Australian superannuation schemes invest in property and allocate 7% to 9% of their funds to property investment; indicating that property is a key asset class. So their total property AUM is also increasing. Consequently, the investment styles and strategies adopted by superannuation schemes, with regards to property, will provide a significant contribution to the overall performance of the fund and become increasingly important.

Of the APRA regulated superannuation schemes, retail schemes hold the largest level of AUM, followed by industry schemes, public sector schemes and then corporate schemes. However, there is a substantially larger number of retail schemes compared to the other types of schemes. Consequently, on average, retail schemes can be smaller in size. This could explain why retail schemes allocate less of their AUM to property compared to industry schemes, public sector schemes and corporate schemes. It could also explain why the superannuation schemes differ in their strategy on the inclusion of listed and unlisted property. Industry schemes, public sector schemes and corporate schemes focus more on investing in unlisted property than listed property. The lower level of AUM held by individual retail schemes means they invest a greater percentage in listed property relative to unlisted property. This allows them to minimise the liquidity and concentration risks associated with investing in unlisted property.

As only the larger Australian superannuation schemes have sufficient funds to effectively invest in a diversified direct property portfolio, investment in unlisted property funds has been the way most superannuation funds get exposure to unlisted property. Property securities funds provide listed property exposure, both domestically and internationally. Since the GFC, the AUM of unlisted property funds and listed property funds has been increasing. This provides superannuation schemes with several avenues to invest in property.

It is in this context that this thesis seeks to understand how superannuation schemes make their strategic decisions regarding their investments in property across both the unlisted and listed property spaces. This will be discussed in subsequent chapters of this thesis. It will be captured via superannuation scheme case studies regarding their property exposure, as well as an industry survey on superannuation schemes decision-making strategies in property investment. Specific case-study examples of the property exposure profile of Australian superannuation schemes and overseas pension funds are given in chapters 3 and 4, respectively.

CHAPTER 3

CASE STUDIES OF AUSTRALIAN SUPERANNUATION SCHEMES

Chapter 3 summarises the property exposure of ten Australian superannuation schemes using case studies. These case studies provide an insight into the property allocation strategies adopted by these schemes.

3.1 Introduction

Case studies allow an investigation of a:

“...contemporary phenomenon in depth and within its real-life context” (Yin, 2014 p.16).

The ability to generalise and make inferences from representative sample case studies has been questioned (Silverman, 2000 p.102). However, it has been argued that case studies can be undertaken as exploratory, descriptive and explanatory research. Descriptive cases of the property exposure and property allocation strategies of ten Australian superannuation schemes are presented in this thesis chapter. These case studies provide a background to the decision-making behaviour by superannuation schemes. The case studies are on some of the larger superannuation schemes, as well as some medium and smaller superannuation schemes. Consequently, they will deliver a reliable description of the general property exposure of Australian superannuation schemes across the AUM spectrum²³.

Not all superannuation schemes invest in property or if they do they may not release much information on their asset allocation to property. Consequently, the case studies are undertaken on schemes that publicly release sufficient detail on their investments in property. Nine of the case studies are on Australian industry superannuation schemes. This is because it was found that other not-for-profit superannuation schemes, corporate and public sector superannuation schemes, release very little information on their property investments. Retail superannuation schemes, which are for-profit schemes, also release limited information. However, retail superannuation schemes were also not considered as their property investment decision-making may not be truly representative of a true superannuation scheme. This is because, instead of preserving their investment income for members when they retire, some of it will be annually distributed to shareholders of the financial institution that established the superannuation scheme. In addition, the Willis Towers Watson global ranking of the largest 300 retirement funds, as at December 2016, was used as a guide when selecting the larger superannuation schemes (Willis Towers Watson, 2017). This global ranking does not include the large retail superannuation schemes, such as MLC Super Fund and Colonial First State First Choice Superannuation Trust, which are listed by APRA amongst the largest twenty superannuation funds in Australia²⁴.

3.2 The Australian Superannuation Schemes

Australian superannuation schemes provide their members with several alternative schemes to choose between when making contributions. The asset allocation to property can

²³ The case studies are not necessarily on the superannuation schemes that provided anonymous responses to the AHP survey in Chapter 6.

²⁴ Table 2.4 in Chapter 2 lists the twenty largest superannuation schemes in Australia.

be different for each of the alternative schemes. This will influence the superannuation scheme's total asset allocation to property. Some Australian superannuation schemes offer their members the ability to contribute to defined benefit schemes and accumulation (or defined contribution) schemes. However, the majority established since the 1980s only offer accumulation schemes and some defined benefit schemes have been closed to new members. Members contributing to accumulation schemes can generally choose between several pre-mixed accumulation schemes or create their own mix by blending single asset class options or combining pre-mixed accumulation schemes with single asset class options. The defined benefit schemes offered by most Australian superannuation funds include property as one of the asset classes that they invest in. This is not the case for all pre-mixed accumulation schemes. Furthermore, property is rarely one of the single asset class options offered to members. Recently, some Australian superannuation schemes have provided eligible members access to a direct investment option that is like a self-managed fund²⁵. This option gives eligible members the flexibility to actively select from a wide range of investments in particular asset classes. Property is generally not one of these asset classes²⁶.

A superannuation schemes exposure to property is not necessarily affected when property is excluded from some of the accumulation schemes they offer their members. This is because more than 90% of members contributing to accumulation schemes do not inform their superannuation fund of the scheme they would like to contribute to. Consequently, their contributions are invested in the default accumulation scheme. Since 2014, government legislation has required these default accumulation schemes to be a MySuper product that invests in a diversified portfolio including growth investments (e.g. shares and property) and defensive investments (e.g. cash and fixed interest) (Treasury, n.d). As a result, the property exposure of the superannuation scheme mainly reflects the property asset allocation of the default accumulation scheme. Typically, this default option is referred to as the balanced accumulation scheme.

Seven of the ten case studies are on large and medium size superannuation schemes in Australia. They are all ranked by Willis Towers Watson as being one of the largest 300 retirement funds globally. The seven are the Future Fund (#32), AustralianSuper (#36), QSuper (#72), UniSuper (#92), REST (#125), Cbus (#153) and HostPlus (#255). The remaining three case studies are on smaller superannuation schemes, CareSuper, CatholicSuper and EnergySuper. The Future Fund is one of Australia's sovereign wealth funds and will start making payments to government pension supported retirees after 2020 if required. The remaining nine are industry schemes. Six of the superannuation schemes only provide their members with the ability to contribute to accumulation schemes, one is a defined benefit scheme, and three offer their members both a defined benefit scheme and accumulation schemes. AustralianSuper, REST, Cbus, HostPlus, CareSuper and CatholicSuper are the six that only provide accumulation schemes. The level of funds that they invest in property mainly reflects the property allocation of their default accumulation scheme. The Future Fund is a defined benefit scheme. QSuper, UniSuper and EnergySuper provide both defined benefit and accumulation schemes, so their total allocation to property will depend on the property allocation in both the defined benefit and allocation schemes.

²⁵ A member is eligible if their superannuation balance exceeds a minimum level. There is a limit on how much of their superannuation balance can be invested through this direct investment option.

²⁶ Typically the only investments that the eligible member can make are in shares in the ASX200 or ASX300, a range of exchange traded funds and range of bank term deposits.

Each case study will provide a profile of the superannuation scheme followed by details on the scheme's strategic target range for property, composition of their property portfolio and the external investment managers that they use to invest in property. The degree of detail provided on each superannuation scheme is dependent on the level of information that they make publicly available.

futurefund

The Future Fund is the largest superannuation scheme in Australia and globally the 32nd largest²⁷. It is an Australian sovereign fund and was established in 2006 by the Australian federal government. The objective being to ensure the government has sufficient money after 2020 to cover government-funded age pensions. Australia’s ageing population has led to a significant increase in the number of people eligible to receive these age pensions. Funding by the Future Fund will reduce the burden that age pensions have on the Budget and future taxpayers. The contributions to this scheme come from the years when the federal government has a Budget surplus and the sale of the federal government’s ownership share in the privatised telecommunication’s company Telstra.

Table 3.1 Profile of the Future Fund

Established	2006
Type	Sovereign wealth fund
Main Contributors	Australian federal government budget surpluses and sale proceeds of ownership in privatised telecommunications company Telstra.
# pension fund domestically	# 1
# pension fund globally	#32
Asset Administrator	Future Fund Board of Guardians
Assets under management ²⁸	133.5 billion AUD or 102.6 billion USD
Asset allocations at June 2017	<ul style="list-style-type: none"> a. Property (6.2%) b. Australian Equity (6%) c. Global Equity (21.8%) d. Private Equity (11.6%) e. Fixed Income (10.6%) f. Infrastructure and Timberland (8%) g. Alternative Assets (14.8%) h. Cash (21%)

Source: Future Fund (2017a) and Future Fund (2017b)

As at June 30th 2017, Table 3.1 shows that the Future Fund’s assets under management (AUM) was 133.5 billion AUD, with 6.2% of this being allocated to property. No information is available on the fund’s strategic target range for property. Their investment strategy is to hold mainly direct property positions in overseas and domestic property. They target property that they believe will outperform in future years. An internal investment team identifies the property types and geographical locations that allow this to occur. Currently, the Future Fund invests in direct property and has joint ventures with seventeen external

²⁷ The statistics and information on this scheme are as at 30th June 2017 and are taken from Future Fund (2017a), Future Fund (2017b) and the scheme’s website, <http://www.futurefund.gov.au/>.

²⁸ The USD equivalent was calculated using the average exchange rate of one Australian dollar being the equivalent of 0.7683 United States dollars on the 30th June 2017 as quoted on www.poundsterlinglive.com. This exchange rate is used to calculate the USD value of their AUM for all the Australian superannuation schemes.

investment managers. They use one external investment manager to manage their listed property investments.

Table 3.2 Strategy, Composition and External Managers: Future Fund

Strategic target range for property	Not available
Composition of property portfolio	<p><i>Property vehicle:</i> Direct property, joint ventures and listed property.</p> <p><i>Property type:</i> Retail (29%), office (22%), industrial (13%), residential (20%), diversified (5%), hotel (4%) and other (7%).</p> <p><i>Location:</i> Australia (20%), United States (53%), Europe (9%), United Kingdom (8%), Japan (2%), other developed countries (3%) and emerging countries (5%).</p>
External investment managers	<p><i>Direct property and joint ventures:</i> Altarea Cogedim, Berkshire Property Advisors, BlackRock, Brookfield Asset Management, Columbia Pacific Advisors, CorVal Partners, DEXUS Funds Management, Garrison Investment Group LP, Harbert Management Corporation, Hillwood Investment Properties, ICAMAP Advisory, Lend Lease Investment Management, Morgan Stanley Real Estate Investing, PEET Limited, The Townsend Group, TIAA-CREF/TIAA Henderson Real Estate and Vicinity Centres.</p> <p><i>Listed property:</i> CBRE Clarion Real Estate Securities.</p>

Source: Future Fund (2017a), Future Fund (2017b) and <http://www.futurefund.gov.au/>.

The Future Fund regards their property portfolio as being well diversified in terms of property types and geographical locations. Table 3.2 shows the property types they mainly invest in are retail (29%), office (22%) and residential (20%). The remaining 29% of their property portfolio is invested in industrial (13%), diversified (5%) and hotel (4%). Since 2015, the Future Fund has decreased its retail exposure from 38% to 29% and office exposure from 28% to 22%. During this period, it has increased its residential exposure from 15% to 20%. The increased residential property investment has been in the United States, with multi-family and senior housing being the focus of this residential investment. When selecting geographical location, the Future Fund prefers countries that are currently, and expected in the future, to experience strong property growth. They have identified the United States and Australia as two of these countries, so hold 53% of their property investments in the United States and 20% in Australia. The other geographical locations only make up 27% of their property portfolio, with 9% being invested in Europe, 8% in the United Kingdom, 2% in Japan, 3% in other developed countries and 5% in emerging countries.



AustralianSuper is the 2nd largest superannuation scheme in Australia and the 36th largest globally²⁹. It is an accumulation scheme formed in 2006 following the merger of three superannuation schemes; Australian Retirement Fund, the Superannuation Trust of Australia, and FinSuper. These three schemes covered different industries, such as Australian jockeys, aviation, steel, food and confectionary, making AustralianSuper a multi-industry scheme. The number of industries covered by AustralianSuper increased in 2013 to include the engineering, construction, maintenance and allied industries after AUST (Q) Super merged with AustralianSuper.

Table 3.3 Profile of AustralianSuper

Established	2006
Type	Industry scheme
Contributors	Employees from engineering, manufacturing and service industries
# pension fund domestically ³⁰	# 2
# pension fund globally	#36
Asset Administrator	AustralianSuper Pty Ltd
Assets under management	123 billion AUD or 94.5 billion USD
Asset allocations at June 2017 ³¹	<ul style="list-style-type: none"> a. Property (8.04%) b. Australian Equity (26.09%) c. International Equity (26.18%) d. Fixed Interest (12.98%) e. Cash (13.75%) f. Infrastructure (17.98%) g. Private Equity (2.75%)

Source: AustralianSuper (2017)

Table 3.3 shows that AustralianSuper’s AUM, as at 30th June 2017, was 123 billion AUD. The asset allocation to property being 8.04%. Members of AustralianSuper can contribute to one of six pre-mixed schemes, create their own mix by combining up to four single asset classes and any of the pre-mixed accumulation schemes and also have access to a direct investment option. Property is one of the four single asset classes, but not one of the direct investments. All six pre-mixed accumulation schemes include property in their portfolio. In Table 3.4, three of these schemes are shown to have a strategic target range for property of 0% to 30%, one a range of 0% to 25% and one a range of 0% to 15%. These five only invest in direct property. The remaining scheme, Indexed Diversified, only invests in

²⁹ The statistics and information on this scheme are as at 30th June 2017 and are taken from AustralianSuper (2017) and the scheme’s website, <https://www.australiansuper.com/>

³⁰ The domestic ranking for this and the following superannuation scheme was determined by their Net Assets provided by Australian Prudential Regulation Authority (2017).

³¹ These statistics were calculated from the data on pages 34-35 of AustralianSuper (2017).

listed property. AustralianSuper includes listed property in their target range for equity. The current asset allocation to property for Indexed Diversified is 5.5% in listed property. Both the Balanced and Socially Aware pre-mixed schemes have the highest asset allocation to property at 7.1%. Balanced is the default scheme that AustralianSuper reports over 90% of their members contribute to. The current property allocations by the pre-mixed schemes are slightly lower than the allocations over the past three years. In addition, they are in the bottom half of their strategic target ranges.

Table 3.4 Strategy, Composition and External Managers: AustralianSuper

Strategic target range for property	0 to 30% (actual 7.1%) in Balanced (default); 0 to 15% (actual 6%) in Stable; 0 to 25% (actual 5.4%) in Conservative; 0 to 30% (actual 7.1%) in Socially Aware; and 0 to 30% (actual 4.3%) in High Growth. <i>Index Diversified</i> : 5.5% listed property (Australian equity 20% to 50%).
Composition of property portfolio ³²	<i>Property vehicle</i> : Direct property, joint ventures and listed property <i>Property type</i> : Retail (51.2%), office (39.9%), industrial (2.9%), residential (2.5%) and other (3.6%). <i>Location</i> : Australia (76.07%), United Kingdom (11.38%), United States (11.38%), Europe (0.39%) and other (0.78%).
External investment managers (% of total property) ³³	ISPT (39.21%), Queensland Investment Corporation (QIC) Pty Ltd (21.33%), Russell Real Estate Advisors Inc. Property (0.17%), AgCAP Pty Ltd Property (0.5%), LaSalle Australian Core Plus Property (0.12%), Franklin Templeton Investments Australian Limited Property (0.11%), Fortius Funds Management Pty Ltd (0.06%), AMP Investment Funds (0.06%), Primewest Industrial Income Trust Property (0.02%), Macquarie Specialist Asset Management Limited (0.003%), and Eureka Funds Management Ltd (0.0001%).

Source: AustralianSuper (2017) and <https://www.australiansuper.com/>.

Geographically, 76% of AustralianSuper’s direct property investments are in Australia. The 24% invested overseas, are mainly in the United Kingdom (11.38%) or the United States (11.38%). AustralianSuper’s acquisition of a 50% ownership share in thecentre:mk located in Milton Keynes, United Kingdom in December 2013 was its first major property investment overseas. Their next were made in 2015 when AustralianSuper acquired a 25% ownership share of the Ala Moana Center in Honolulu, Hawaii and a 25% ownership share in the King’s Cross Estate in London, the United Kingdom. The King’s Cross Estate is a mix of office, retail and residential property. AustralianSuper now owns two thirds of the King’s Cross Estate.

AustralianSuper mainly invests in retail and office property, with 51.2% of the property portfolio invested in retail and 39.9% in office. Only 2.9% is invested in industrial property and 2.5% in residential property. The residential area of the Kings Cross Estate in the United Kingdom accounts for most of this 2.5%. It is mainly multi-family and student housing. The other residential property is in multi-family housing in Victoria, Western Australia,

³² These are estimated from the properties listed on AustralianSuper’s website. They are as at 31 December 2017. The value of each property is given as a range.

³³ These are estimated from the amounts managed by each external property manager as at 31 December 2017.

Queensland and the United States. The 3.6% invested in other property is in hotels, resorts, factories and warehouses.

Decision-making by AustralianSuper's internal investment team accounted for 38.4% of their investments in property in June 2017. The remaining 61.6% of property investments were undertaken through thirteen (13) external fund managers. The majority of this being done by ISPT (39.21%) and QIC Property Funds Pty Ltd (21.33%). Over the past decade AustralianSuper has been reducing its exposure to unlisted property funds and increasing their direct property exposure. Below is the list of the ten largest property investments held by AustralianSuper.

Ten largest holdings in property investments:

1. Ala Moana Shopping Centre, Honolulu, United States – Retail
2. Milton Keynes, London, United Kingdom – Retail
3. 1 William Street Trust, QLD – Office
4. 100 Pacific Highway, North Sydney, NSW – Office
5. 100 St Georges Terrace, Perth, WA – Office
6. 163 Castlereagh Street, Sydney, NSW – Office
7. 345 George St, Sydney, NSW – Office
8. 363 George St, Sydney, NSW – Office
9. 500 Bourke Street, Melbourne, VIC – Office
10. 75 State Street, Boston, United States – Office



QSuper is the 3rd largest Australian superannuation scheme and globally the 72nd largest³⁴. It was established in 1912 under an Act of Queensland Parliament. Originally, it was open to only employees of the Queensland government, such as teachers and administrative clerks, and their spouses. In 1997, most of the other schemes for Queensland government employees merged with QSuper. Members of QSuper can contribute money into either an accumulation or defined benefit scheme. The defined benefit scheme has been closed to new members since November 2008.

Table 3.5 Profile of QSuper

Established	1912
Type	Public Sector scheme
Contributors	Queensland government employees
# pension fund domestically	# 3
# pension fund globally	#72
Asset Administrator	QSuper Limited
Assets under management	93.9 billion AUD or 72.1 billion USD
Asset allocations at June 2017 ³⁵	<ul style="list-style-type: none"> a. Property (6.34%) b. Australian Equity (10.1%) c. International Equity (23.1%) d. Fixed Interest (23.4%) e. Cash (18.6%) f. Infrastructure (12.5%); g. Alternative Assets (7.4%)³⁶

Source: QSuper (2017)

Table 3.5 shows that as at the 30th June 2017, QSuper’s AUM was 93.9 billion AUD, with just over 6% being invested in property. 30% of the AUM is held in the defined benefit scheme and 70% in the accumulation schemes. Table 3.6 reports that the defined benefit scheme has a strategic property target range of 5% to 15% and in 2017 allocated 9.6% to property. This allocation is roughly a third greater than the 6.3% property allocation based on the total AUM. This is because, most of the accumulation schemes allocate less to property than the defined benefit scheme. QSuper offers its accumulation scheme members the ability to contribute to five pre-mixed accumulation schemes, create their own mix by combining four single asset classes and pre-mixed schemes and have access to a direct investment option. Property is not one of the single asset classes or direct investments. All the pre-mixed accumulation schemes invest in property. QSuper Lifetime is the default pre-mixed accumulation scheme and automatically changes the asset composition of a member’s scheme as they move into an older age group and/or their superannuation balance increases

³⁴ The statistics and information on this scheme are as at 30th June 2017 and are taken from QSuper (2017) and the scheme’s website, <https://qsuper.qld.gov.au/>.

³⁵ Calculated from the statistics on page 11 of QSuper (2017).

³⁶ The alternative assets are private equity, commodities, managed funds and incubator assets.

above a set threshold. In 2017, the strategic target range for property was 0% to 25% for the four younger age groups and 0% to 20% for the age group older than 58 years old. The actual allocation for all age groups in 2017 was at the lower end of the strategic target ranges. The highest allocation was 9% for the under 40 year age group and the lowest 2.7% for the older than 58 years age group that had a balance of \$300,000 or more. Within each age group, the allocation was smaller for members with balances above set thresholds. The other four pre-mixed accumulation schemes are known as Ready Made schemes. Two have a target range in property of 0% to 10% and the other two, 0% to 20%. Their actual allocations were close to half of the target range. Aggressive had the highest allocation at 9% and Moderate the lowest allocation at 4.1%. The allocations for the pre-mixed accumulation schemes are similar to what they have been over the past few years.

Table 3.6 Strategy, Composition and External Managers: QSuper

Strategic target range for property	<p><i>Defined Benefit:</i> 5 to 15% (currently 9.6%).</p> <p><i>QSuper Lifetime (default):</i> 0% to 25% (actual 7%) for under 40 year olds; 0% to 25% (actual 9% when balance under \$50,000 and 7.2% when balance \$50,000 or more) for 40 to 49 year olds; 0 to 25% (actual 7.2% when balance less than \$100,000, 6.3% when balance \$100,000 to \$250,000, and 5.4% when balance \$250,000 or more) for 50 to 57 year olds; and 0 to 20% (actual 4.6% when balance less than \$300,000 and 2.7% when balance \$300,00 or more) for older than 58 years old.</p> <p><i>Ready Made schemes:</i> 0% to 20% (actual 8.2%) in Balanced; 0 to 10% (actual 4.1%) in Moderate; 0 to 10% (actual 5.3%) in Socially responsible; and 0 to 20% (actual 9%) in the Aggressive.</p>
Composition of property portfolio	<p><i>Property vehicle:</i> Direct property, unlisted property funds and listed property.</p> <p><i>Property Type:</i> Retail, office, industrial and residential.</p> <p><i>Location:</i> Australia (70.63%), Europe (15.79%) and United States (13.58%).</p>
External investment managers	<p>AEW Europe LLP, CIM Investment Advisors, LL, Invesco Advisers Inc, Jamestown Premier GP, LP, Queensland Investment Corporation (QIC) Ltd, QSuper Asset Management Pty Ltd and QSuper Limited.</p>

Source: QSuper (2017) and <https://qsuper.qld.gov.au/>.

QSuper’s investment strategy is to invest in retail, office, industrial and residential property by way of listed and unlisted property trusts as well as direct property. Geographically, 70% of their property investments are in Australia and 30% overseas, either in Europe or the United States. QSuper did not start investing in overseas property until 2006. The selection of the property to invest in is made and managed by internal in-house managers in combination with seven (7) external investment managers. QSuper’s largest investments in property are listed below.

Largest holdings in property investments:

1. Robina Town Centre , Gold Coast, QLD - Retail
2. Westpoint Mall, Blacktown, NSW – Retail

3. Logan Hyperdome, Logan, QLD – Retail
4. Bath Road Portfolio Slough, United Kingdom – Retail.
5. The Bridges Shopping Centre, Sunderland, United Kingdom - Retail



UniSuper is the 8th largest retirement scheme in Australia and 92nd largest globally³⁷. It was formed in 2000 following the merger of the Superannuation Scheme for Australian Universities (SSAU) and the Tertiary Education Superannuation Scheme (TESS). It is an industry scheme for people employed in Australia’s higher education and research sector. Existing and new employees in this sector can contribute to accumulation schemes and a defined benefit division. Additional contributions made by defined benefit scheme members above the compulsory contributions will be invested in an accumulation scheme.

Table 3.7 Profile of UniSuper

Established	2000
Type	Industry Scheme
Contributors	Employees in Australia’s higher education and research sector
# pension fund domestically	# 8
# pension fund globally	#92
Asset Administrator	UniSuper Management Pty Ltd
Assets under management	61.6 billion AUD or 47.3 billion USD
Asset allocations at June 2017	<p><u>Accumulation schemes</u></p> <ul style="list-style-type: none"> a. Property (5%) b. Australian Equity (43.0%) c. International Equity (19.1%) d. Infrastructure and Private Equity (5.2%) e. Fixed Interest (14.0%) f. Cash (10.4) g. Sustainable (3.3%) <p><u>Defined benefit</u></p> <ul style="list-style-type: none"> a. Property (9.0%) a. Australian Equity (56.7%) b. International Equity (10.2%) c. Infrastructure and Private Equity (8.8%) d. Fixed Interest (9.3%) e. Cash (5.9%) f. Sustainable (0.0%)

Source: UniSuper (2017)

The AUM of UniSuper, as at 30th June 2017, are reported in Table 3.7 to be 61.6 billion, with 33.9 billion (55%) in the accumulation schemes and 27.7 billion (45%) in the defined benefit scheme. Table 3.7 reports that allocation to property by the defined benefit scheme was 9% and higher than the 5% allocated by the accumulation schemes. Overall, this means UniSuper’s total allocation to property is 6.8%, as 55% of the AUM are held in the accumulation schemes and 45% in the defined benefit scheme. The defined benefit scheme’s

³⁷ The statistics and information on this scheme are as at 30th June 2017 and are taken from UniSuper (2017) and the scheme’s website, <https://www.unisuper.com.au/>.

allocation is similar to the allocations in previous years. In contrast, the property allocation by the accumulation scheme has doubled since 2016, when it was only around 2.5%.

UniSuper offers its members seven pre-mixed accumulation schemes to choose from and the ability to create their own mix by blending any of nine single asset class options and pre-mixed accumulation schemes. Listed Property is one of the single asset class options. Five of the seven pre-mixed accumulation schemes invest in direct property and unlisted property funds, where there are few investors in the property fund. The investment strategies of the two schemes that currently do not invest in property specify that they are able to invest in Australian listed property.

Information on the defined benefit's strategic target range for property is not available, but it is for the accumulation schemes. Table 3.8 shows the target range for four of five pre-mixed accumulation schemes that invest in property is 0% to 20%, with a strategic asset allocation of 5%. The default accumulation scheme, Balanced, is one of these four schemes. The fifth pre-mixed accumulation scheme, Conservative Balanced, has a range of 0% to 22.5% and strategic asset allocation of 7.5%. More than 50% of the funds invested by the accumulation schemes are undertaken by Balanced and only 10% are invested by Conservative Balanced. This explains why the total asset allocation by the accumulation schemes in property is 5% in 2017. The strategic property allocations for all five lie in the lower half of their strategic property target ranges. The strategic property target ranges for the Listed Property single asset class option are 35% to 65% in Australian Listed Property (REITS) and 35% to 65% in International Listed Property. Currently, its strategic allocation is 50% in REITs and 50% in International Listed Property.

Table 3.8 Strategy, Composition and External Managers: UniSuper

Strategic target range for property	<i>Pre-mixed options:</i> 0% to 20% (strategic 5%) in Balanced (default); 0% to 20% (strategic 5%) in Conservative; 0% to 22.5% (strategic 7.5%) in Conservative Balanced; 0% to 20% (strategic 5%) in Growth; and 0% to 20% (strategic 5%) in High Growth. <i>Sector Investment Option:</i> 35% to 65% in Australian Listed Property (REITS) (strategic 50%) and 35% to 65% (strategic 50%) in International Listed property. 100% in Listed Property
Composition of property portfolio	<i>Property vehicle:</i> Direct property, unlisted property funds and listed property. <i>Property type:</i> Office, retail and industrial.
External investment managers	AMP Investment Funds, Goldman Group, Lend Lease, GPT Group and ISPT Pty Ltd.

Source: UniSuper (2017) and <https://www.unisuper.com.au/>.

The majority of UniSuper's property investment is in direct property rather than unlisted property funds and listed property. Its overall investment strategy focuses on investing in core high quality real estate. They have 100% ownership in several retail and office properties. A list of UniSuper's largest holdings in direct property are listed below. The unlisted property investments are located only in Australia and are mainly in high quality regional shopping centres.

Largest holdings in property investments:

1. Karringyup Shopping Centre, Karringyup, WA - Retail
2. ISPT 50 Lonsdale St, Melbourne, VIC - Office
3. 7 Macquarie St, Sydney, NSW - Office
4. Malvern Central Shopping Centre, Malvern, VIC - Retail
5. Dapto Mall, Dapto, NSW – Retail

The investment team of Unisuper uses both internal and external management for its property portfolio. Internal investment management is undertaken by UniSuper Management Pty Ltd. Currently, there are five (5) external investment managers that are responsible for the unlisted property investments. The unlisted property funds invest in all property types in Australia and are listed below. The Listed Property single asset class option is managed by UniSuper Management Pty Ltd. It invests in twenty one Australian and internationally listed REITs.

UniSuper's Unlisted Property Funds

1. AMP Capital Select Property 2
2. AMP Unlisted Property
3. AMP Wholesale Office Trust
4. Goodman Australian Industrial Fund
5. Lend Lease APPF Retail
6. Lend Lease APPF Industrial
7. GPT Wholesale Office Fund
8. GPT Wholesale Shopping Centre Fund
9. ISPT 50 Lonsdale Street Trust
10. ISPT Core Fund



The Retail Employees Superannuation Trust (REST) was established in 1988 as an accumulation scheme for retail industry workers³⁸. It is the 12th largest superannuation fund in Australia and is globally the 125th largest. As at June 2017, Table 3.9 reports that REST's AUM was 45 billion AUD with 7.6% allocated to property investments. This allocation is slightly lower than the 7.9% allocation in 2016 and slightly higher than the allocation of 7% in 2015.

Table 3.9 Profile of REST

Established	1988
Type	Industry scheme
Contributors	Mainly employees in the retail industry.
# pension fund domestically	# 12
# pension fund globally	#125
Asset Administrator	Super Investment Management Pty Ltd
Assets under management	45 billion AUD or 34.6 billion USD
Asset allocations at June 2017	<ul style="list-style-type: none"> a. Property (7.6%) b. Australian Equity (24.4%) c. International Equity (29.2%) d. Infrastructure (6.2%) e. Fixed Interest (19.9%) f. Cash (4.23%) g. Other³⁹ (8.5%)

Source: REST (2017)

Members of REST can choose to invest in one of six pre-mixed accumulation schemes or create their own mix to include up to four asset classes. One of the four asset classes is property. Five of the pre-mixed accumulation schemes invest in property. Table 3.10 shows that four of the pre-mixed accumulation schemes have a strategic property target range that falls between 0% and 14%. Their strategic asset allocations for property are roughly in the middle of the target range. The remaining pre-mixed scheme, REST's default scheme Core Strategy, has a wider strategic target range of 0% to 25%. Its strategic asset allocation of 9% is at lower end of this target range. The strategic asset allocations of Core Strategy, Balanced, Diversified and High Growth are lower than in previous years by around 1% to 2%. Information on REST's actual allocation to property is not available.

³⁸ The statistics and information on this scheme are as at 30th June 2017 and are taken from REST (2017) and the scheme's website, <http://www.rest.com.au/>.

³⁹ The Other category contains unlisted trusts in absolute return strategies and alternative assets.

Table 3.10 Strategy, Composition and External Managers: REST

Strategic target range for property	<i>Pre-mixed options:</i> 0% to 25% (strategic 9%) in Core Strategy (default); 0% to 10% (strategic 5%) in Capital Stable; 1% to 11% (strategic 6%) in Balanced; 3% to 13% (strategic 8%) in Diversified; 4% to 14% (strategic 6%) in High Growth.
Composition of real estate portfolio	<i>Property vehicle:</i> Direct property and unlisted property funds. <i>Property type:</i> Office (64.6%), residential (18.2%) and retail (17.2%). <i>Location:</i> Australia (84.5%), New Zealand (0.4%), United Kingdom (0.9%) and United States (14.2%)
External investment managers (% of total property)	Charter Hall Funds Management Ltd (16.3%), GPT Funds Management Ltd (15.2%) and Super Investment Management Pty Ltd (68.5%).

Source: REST (2017) and <http://www.rest.com.au/>

REST invests in direct property and unlisted property trusts. Office is the main property type that REST invests in, with just under two thirds (64.6%) of their property investments being in office. They also invest in retail (17.2%) and residential (18.2%), but their level of investment in these property types is substantially less than in office. The geographical location of the majority of REST's property investments is Australia (84.5%) followed by the United States (14.2%). REST also has minor property investments in the United Kingdom (0.9%) and New Zealand (0.4%). The majority of their overseas property investments are in residential, particularly student accommodation, in the United States, United Kingdom and New Zealand.

Due to the high value of office, a large proportion of REST's property portfolio is invested in three CBD properties, one in Sydney and two in Melbourne. These three properties are listed below. A wholly owned company of REST, Super Investment Management Pty Ltd, manages 68.53% of the total property held by REST. Two (2) external investment managers, Charter Hall Funds Management (16.3%) and GPT Funds Management (15.2%), manage the remaining 31.47%.

Three largest holdings in property investments:

1. 140 William St, Melbourne, Victoria - Office
2. 52 Martin Place, Sydney, NSW - Office
3. 717 Bourke St, Melbourne, Victoria - Office



In 1984, the Construction and Building Unions Superannuation Fund (Cbus) was formed for individuals that were members of the building and construction industries unions⁴⁰. Cbus invests in the construction of significant properties in Australia to support their members as this investment creates jobs in the building and construction industries. In 2017 Cbus was domestically the 15th largest retirement fund and the 153th largest globally. Table 3.11 reports that in 2017 Cbus had 40 billion AUD in AUM, with 11% of this being invested in property. This allocation is similar to the property allocation for the previous three years.

Table 3.11 Profile of Cbus

Established	1984
Type	Industry scheme
Contributors	People employed in building, construction and allied industries.
# pension fund domestically	# 15
# pension fund globally	#153
Asset Administrator	Cbus Investment Team
Assets under management	40 billion AUD or 30.7 billion USD
Asset allocations at June 2017	<ul style="list-style-type: none"> a. Property (11.0%) b. Australian Equity (25%) c. International Equity (21.5%) d. Fixed Interest⁴¹ (14%) e. Cash (8.5%) f. Infrastructure (11.0%) g. Private Equity (5.5%) h. Others⁴² (12.5%)

Source: Cbus (2017)

Cbus members can invest in one of four pre-mixed accumulation schemes and directly invest in four asset classes through the option known as Cbus Self-Managed⁴³. Property is one of the asset classes. 80% of the property investments that members can directly invest in are unlisted property funds and 20% are listed property funds. Three of the four pre-mixed accumulation schemes invest in direct property, unlisted property and global listed property. The strategic target range for property is shown in Table 3.12 to be similar for two of the schemes, the default scheme Growth (3% to 23%) and High Growth (0% to 18%). The target range for the third, Conservative (2% to 12%), is considerably less than these target ranges.

⁴⁰ The statistics and information on this scheme are as at 30th June 2017 and are taken from Cbus (2017) and the scheme's website, <http://www.cbussuper.com.au/>.

⁴¹ This includes alternative debt investments, such as bank loans and direct lending, that Cbus categorises as the Credit asset class.

⁴² The Other category is made up of what Cbus categorises as alternative growth (9%) and opportunistic growth (3.5%) assets.

⁴³ A fifth pre-mixed accumulation scheme, Conservative Growth, has just been introduced.

Currently the Growth scheme has the highest asset allocation to property at 11%. As 90% of the Cbus members contribute to this default scheme, it explains why the overall asset allocation to property by Cbus is 11%.

Table 3.12 Strategy, Composition and External Managers: Cbus

Strategic target range for property	2% to 12% (actual 6.5%) in Conservative; 3% to 23% (actual 10.99%) in Growth (default); and 0% to 18% (actual 8%) in High Growth.
Composition of property portfolio	<i>Property vehicle:</i> Direct property (50.5%), unlisted property funds and listed property. <i>Property type:</i> Office (45%), retail (39%), industrial (13%) and other (2%). <i>Location:</i> Australia (80%) – New South Wales (31%), Victoria (20%), Western Australia (14%), Queensland (9%), Australian Capital Territory (3%) and South Australia (3%). Overseas (20%).
External investment managers (% of total property)	Cbus Property (50.5%), ISPT (34.3%), AMP Capital Investors (12.4%), Resolution Capital (2.9%), Fortius Funds Management (0.1%), Franklin Templeton Investments Australia (0.08%) and Blackrock (0.002%).

Source: Cbus (2017) and <http://www.cbussuper.com.au/>

The investment strategy of Cbus requires them to mainly invest in existing core property. However, the strategy aims to increase the amount of developing property that they invest in. The main property types Cbus invests in are office (45%) and retail (39%). Their investments in industrial (13%) and other (2%) property make up only 15% of their total property portfolio. Other property includes residential multi-family property and property in the areas of healthcare, storage and hotels.

Cbus established Cbus Property in 2006 to manage their direct property investments. All of these are in Australia, mainly in Victoria and News South Wales. The direct property managed by Cbus Property is 50.5% of their total property portfolio. Twenty of the direct property investments accounted for close to 59% of their total direct property. The top 10 of these are listed below and are mainly office. The remaining 49.5% of Cbus’s property portfolio are held in unlisted property funds and global listed property. Six (6) external investment managers are responsible for managing these property investments. Over 90% of them are managed by two of the six external investment managers, ISPT (70%) and AMP Capital Investors (25%). Cbus invests overseas through listed property trusts selected by their external investment manager, Resolution. These listed property trusts invest in the US, UK, Europe and Asia and only account for 2.9% of the Cbus property portfolio.

Ten largest holdings in direct property investments⁴⁴

1. 1 William Street, Brisbane, QLD - Office
2. 720 Bourke Street, Melbourne, Vic - Office
3. 140 William Street, Perth, WA – Office
4. 447 Collins Street, Melbourne, VIC – Mixed Use
5. 1 Bligh Street, Sydney, NSW – Office

⁴⁴ These are as of the 30th June 2018.

6. 5 Martin Place, Sydney, NSW – Office
7. 77 Market Street, Sydney, NSW – Mixed Use
8. Newmarket Green, Randwick, NSW – Residential
9. 171 Collins Street, Melbourne, Vic – Office
10. 313 Spencer Street, Melbourne, Vic – Office



Two trade unions, the Australian Hotels Association and United Voice, established Hostplus in 1987 as a superannuation scheme for workers in the industries they represented⁴⁵. People employed in the Hotel industry were members of the Australian Hotels Association, while the membership of United Voice was open to workers in the Hospitality; Health and Age Care; Manufacturing, Mining and Miscellaneous; Property Services and Childcare Services industries. Hostplus is an accumulation superannuation scheme. It is the 19th largest Australian superannuation scheme and the 255th largest globally.

Table 3.13 Profile of Hostplus

Established	1987
Type	Industry scheme
Contributors	Mainly people employed in hospitality, tourism, recreation and sport industries.
# pension fund domestically	# 19
# pension fund globally	# 255
Asset Administrator	Host-Plus Pty Ltd
Assets under management	24.7 billion AUD or 19 billion USD
Asset allocations at June 2017 ⁴⁶	<ul style="list-style-type: none"> a. Property (13.3%) b. Australian Equity (25.8%) c. Global Equity (24.8%) d. Private Equity (6.1%) e. Fixed Income (7.0%) f. Infrastructure (10.8%) g. Cash (3.2%) h. Alternative assets (2.3%) i. Credit (5.9%) j. Other (0.8%)

Source: Hostplus (2017)

Table 3.13 reports that as at 30th June 2017, Hostplus held 24.7 billion AUD in AUM. 13.3% was allocated to property, which is similar to allocations for previous years. Members of Hostplus can contribute to one of six pre-mixed accumulation schemes, combine the pre-mixed accumulation schemes with up to five asset classes and select a direct investment option. Members can choose between certain external fund managers when investing in the five asset classes. Property is one of the asset classes but not one of the direct investment options. The individual external fund managers that members can select to invest property in are the Industry Super Property Trust (ISPT) Core Fund and Lend Lease Managed Australian

⁴⁵ The statistics and information on this scheme are as at 30th June 2017 and are taken from Hostplus (2017) and the scheme's website, <http://hostplus.com.au/>.

⁴⁶ Calculated from the statistics on page 110-113 of Hostplus (2017).

Prime Property Funds. Both these funds invest 30% of their unlisted property fund in growth property and 70% in defensive property. Growth is property whose return is mainly due to its changing value. Defensive is property whose return is mainly driven by its rental income.

Five of the six pre-mixed accumulation schemes are able to invest in property, with different strategic target ranges being set for their level of investment in growth property and defensive property⁴⁷. Table 3.14 shows that three have a strategic target range of 0% to 10% for growth property, one has a strategic target range of 0% and 15% and one a strategic target range of 0% to 20%. The default scheme, Balanced, is the one with a growth property target range of 0% to 15%. Its target range for defensive property is 0% to 20%, which is wider than the other four pre-mixed accumulation schemes. The strategic asset allocations for Balanced, are 4% for growth and 9% for defensive. This supports the current 13.3% allocation to property by Hostplus. The strategic asset allocations for each of the schemes for growth property are at the lower end of the ranges, while their strategic asset allocations for defensive property are midway. No information is available on the actual asset allocations.

Table 3.14 Strategy, Composition and External Managers: Hostplus

Strategic target range for property	0% to 15% for growth (strategic 4%) and 0% to 20% for defensive (strategic 9%) in Balanced (default); 0% to 10% for growth (strategic 3%) and 0% to 15% for defensive (strategic 7%) in Capital Stable; 0% to 10% for growth (strategic 3%) and 0% to 15% for defensive (strategic 7%) in Conservative Balanced; 0% to 20% for growth (strategic 9%) and 0% to 10% for defensive (strategic 0%) in Socially Responsible Investment; 0% to 10% for growth (strategic 2%) and 0% to 15% for defensive (strategic 6%) in Shares Plus.
Composition of property portfolio	<i>Property vehicle:</i> Direct property, unlisted property funds and listed property. <i>Property type:</i> Retail (54.8%), office (30.4%), industrial (8.9%); residential (6%) and other (1%). <i>Strategy:</i> Core (90.3%) and Value-added/Opportunistic/Tactical (9.7%) <i>Location:</i> Australia (93.3%) - New South Wales (33.3%), Queensland (20.7%), Victoria (21.5%), Western Australia (11%), South Australia (2.9%), Australian Capital Territory (2.9%), Tasmania (0.3%) and Northern Territory (0.05%) Overseas (7.4%) - Singapore (7%), Malaysia (0.3%), Japan (0.0%), China (0.0%), Thailand (0.0%) and New Zealand (0.0%).
External investment managers (% of total property)	Lend Lease Investment Management (33.3%), ISPT Pty Ltd (50.3%), Charter Hall Funds Management Limited (14.8%), AMP Capital Investors Limited (0.8%), BlackRock Investment Management (UK) Limited (0.3%), and Macquarie Admin Services Pty Ltd (0.4%).

Source: Hostplus (2017) and <http://hostplus.com.au/>

⁴⁷ Members can also choose Hostplus Life which invests their contributions in Shareplus when they are younger than 40; Balanced when they are 40 to 49 years old; Conservative Balanced when they are 50 to 59 years old; and Capital Stable when they are older than 60.

Hostplus invests in direct property, unlisted property funds and listed property. However, the majority of their property investments are indirect, with their holding of direct property only accounting for 0.12% of the property portfolio. The investment strategy of Hostplus is to focus on core property. 90.3% of their investments are in core and only 9.7% in value-added, opportunistic and tactical. Hostplus uses specialist external investment managers to invest in assets on their behalf. They employ six (6) external investment managers to invest in property. The investments by two of these, Lend Lease Investment Management and ISPT, account for 83.6% of their property portfolio. A list of Hostplus indirect investments is provided below. The largest indirect property investment is in the ISPT Core Fund (33.1%) closely followed by Lend Lease's Australian Prime Property Funds (29%). In terms of property type, close to half of the property investment is in retail (54.8%) and one third in office (30.4%). Only 16.2% is invested in industrial (8.5%), residential (6%) and other (1.7%). Geographically, Hostplus mainly invests domestically in Australian property (93.3%), with the majority of this being in New South Wales (33.3%), Queensland (20.7%) and Victoria (21.5%). The 7.4% invested in overseas property is located in South East Asia, mainly in Singapore (7%). Substantially smaller amounts are invested in property in Malaysia, Japan, China, Thailand and New Zealand. Hostplus is an excellent example of a superannuation scheme who are largely limited in their property exposure to unlisted property funds due to the lower size of their total AUM.

Indirect Investments - % of total property

1. ISPT Core Fund – ISPT Pty Ltd (33.1%)
2. Australian Prime Property Funds (Retail, Commercial & Industrial) – Lend Lease Investment Management (29%)
3. Lend Lease Asian Retail Investment Fund – Lend Lease Investment Management (8.6%)
4. ISPT Retail Australian Property Trust – ISPT Pty Ltd (7.5%)
5. Long Weighted Investment Partnership (LWIP) Trust – Charter Hall Wholesale Management Limited (6.1%)
6. Lend Lease Sub-Regional Retail Fund – Lend Lease Investment Management (4.5%)
7. Charter Hall Prime Industrial Fund – Charter Hall Funds Management Limited (3.9%)
8. Long Weighted Investment Partnership (LWIP) Trust II – Charter Hall Wholesale Management Limited (3.0%)
9. ISPT Non-Discretionary Residential Mandate – ISPT Pty Ltd (2.9%)
10. Select Property Portfolio No. 3 – AMP Capital Investors Limited (0.5%)
11. Macquarie Real Estate Equity Fund 6 – Macquarie Admin Services Pty Limited (0.3%)
12. Select Property Portfolio No. 2 – AMP Capital Investors Limited (0.2%)
13. ISPT Development and Opportunities Fund II – ISPT Pty Ltd (0.2%)
14. BlackRock Asia Property Fund III – BlackRock Investment Management (UK) Limited (0.2%)
15. Lend Lease Communities Fund 1 – Lend Lease Investment Management (0.1%)
16. ISPT Development and Opportunities Fund I – ISPT Pty Ltd (0.01%)



CareSuper was established in 1986 as an industry accumulation scheme for professionals in the administrative, managerial and service sectors⁴⁸. CareSuper is the 28th largest Australian superannuation scheme and is not ranked globally. Table 3.15 reports that as at the 30th June 2017, CareSuper’s AUM was 13 billion AUD, with 12.3% of this being allocated to property. The allocation is similar to the allocation in 2016 and just over 1% higher than the allocation in 2015.

Table 3.15 Profile of Caresuper

Established	1986
Type	Industry scheme
Contributors	People employed in professional administrative, managerial, and service sectors.
# pension fund domestically	#28
# pension fund globally	Not ranked
Asset Administrator	CareSuper Pty Ltd
Assets under management	13 billion AUD or 10 billion USD
Asset allocations at June 2017	<ul style="list-style-type: none"> a. Property (12.3%) b. Australian Equity (20.9%) c. International Equity (24.9%) d. Fixed Interest (6.3%) e. Cash (11.3%)⁴⁹ f. Credit (5.7%) g. Infrastructure (5.8%) h. Private Equity (4.7%) i. Absolute Return (7.7%)

Source: CareSuper (2017)

Members of CareSuper can choose to invest in one of seven pre-mixed accumulation schemes, combine up to five asset classes and pre-mixed accumulations schemes and select a direct investment option. Property is one of the asset classes, but not a direct investment. Six of the seven pre-mixed accumulation schemes include property in their portfolios. The strategic property target range for two of these are shown in Table 3.16 to be 0% to 15%. The strategic asset allocation for one of these is 6% and for the other 7%. The other four have a target range of 0% to 25%, with a strategic asset allocation of 12%. Balanced, CareSuper’s default fund, is one of these. Information on the actual allocations is not available. However, as the majority of members contribute to Balanced, its 12% strategic asset allocation explains why the overall asset allocation by Caresuper is just above 12%.

⁴⁸ The statistics and information on this scheme are as at 30th June 2017 and are taken from CareSuper (2017) and the fund’s website, <http://www.caresuper.com.au/>.

⁴⁹ 0.59% of Cash includes money held in an AMP Guaranteed Savings Account.

Table 3.16 Strategy, Composition and External Managers: CareSuper

Strategic target range for property	0% to 15% (strategic 6%) in Capital Stable; 0% to 15% (strategic 7%) in Conservative Balanced; 0% to 25% (strategic 12%) in Balanced (default); 0% to 25% (strategic 12%) in Sustainable Balanced; 0% to 25% (strategic 12%) in Alternative Growth; 0% to 25% (strategic 12%) in Growth.
Composition of property portfolio	<i>Property vehicle:</i> Unlisted property funds. <i>Property type</i> – Office (51.6%), retail (41.8%), industrial (5.9%) and other (0.7%). <i>Location</i> – Australia (99.9%) - New south wales (40.5%), Queensland (24.3%), Victoria (20.9%), Western Australia (9.2%), South Australia (2.1%) and Australian Capital Territory (3.0%). Overseas (0.1%).
External investment managers (% of total property)	DEXUS (39.4%), ISPT (40.4%), Charter Hall (17.9%), Lend Lease (2.27%) and Eureka (0%).

Source: CareSuper (2017) and <http://www.caresuper.com.au/>

CareSuper’s investment strategy is to focus on Australian high quality core property in the form of CBD office buildings and shopping centres. Just over half the property investments are in office (51.6%), followed by just over a third in retail (37.6%). A very small amount is invested in industrial (5.9%) and other (2%). Geographically, just over 90% of property investments are in New South Wales, Queensland or Victoria. New South Wales being the location of 40%, while Queensland and Victoria each account for just over 20% each.

All investments made by CareSuper are undertaken by appointed external investment managers. CareSuper only invests in property indirectly through unlisted property funds. They currently use five (5) external investment managers to invest in property. ISPT and Dexus are responsible for most of this, accounting for 79.8% of CareSuper’s property portfolio. ISPT operates four of the property funds that CareSuper invests in, while Dexus only operates one. The ISPT property funds are specialist funds, while the Dexus property fund is diversified across several property types. CareSuper’s indirect property investments are listed below.

Indirect Investments - % of total property

1. DEXUS Wholesale Property Fund (39.4%);
2. ISPT Core Fund (32.5%);
3. Charter Hall Core Prime Office Fund (17.9%);
4. ISPT Retail Australia Property Trust (7.6%);
5. Lend Lease Australian Prime Property Fund Retail (2.27%);
6. ISPT Development & Opportunities Funds No. 2 (0.27%);
7. ISPT International Property Trust (0.004%);
8. Eureka Development Fund No. 2 (0%).



Catholic Super Fund (CSF) is an industry fund established in 1971. It is an accumulation scheme and its members are mainly employed in Catholic schools, Churches and parishes⁵⁰. It is the 36th largest superannuation fund in Australia and not ranked globally. Table 3.17 reports that as at the 30th June, CSF had 8.5 billion AUD in AUM, with 7.3% of this invested in property. Listed property made up 21% of the total property investments and unlisted property 79%. These asset property allocations are consistent with previous years.

Table 3.17 Profile of CSF

Established	1971
Type	Industry scheme
Contributors	Mainly people working in Catholic schools, churches and parishes.
# pension fund domestically	# 36
# pension fund globally	Not ranked
Asset Administrator	CSF Pty Ltd
Assets under management	8.5 billion AUD or 6.5 billion USD
Asset allocations at June 2017	<ul style="list-style-type: none"> a. Property (7.3%) b. Australian Equity (24.0%) c. International Equity (22.2%) d. Cash (12.8%) e. Fixed Interest (8.7%) f. Private Equity (3.0%) g. Alternative Assets (16.4%) h. Infrastructure (5.6%) i. Other (0.4%)

Source: Catholic Super Fund (2017)

CSF allows members to invest in one of eight pre-mixed accumulation schemes, build their own mix to include investments in six asset class options and select a direct investment option. Property is one of the six asset classes, but not direct investments. All of the pre-mixed accumulation schemes invest in property. Information on the actual asset allocation for the pre-mixed accumulation schemes is not available. Table 3.18 shows that one of the schemes has a strategic property target range of 0% to 15%, four have a strategic property target range of 0% to 20%, and one has a strategic property target range of 0% to 25%. Their strategic asset allocation to property lies midway or at the lower end of these target ranges. The strategic target ranges and strategic asset allocations are similar to the ones that applied in previous years. The majority of members contribute to CatholicSuper’s default fund, Aggressive, for members under the age of 51. It has the lowest strategic target range and a strategic allocation to property of 5%. The default scheme for members older than 53 is

⁵⁰ The statistics and information on this scheme are as at 30th June 2017 and are taken from Catholic Super Fund (2017), Catholic Super Fund (2018) and the scheme’s website, <http://csf.com.au/>. The Catholic Super Fund is the trustee for MyLifeMyMoney Superannuation Fund. Catholic Super and MyLife MySuper are included in this fund.

Balanced. It has a slightly wider target range of 0% to 20% and strategic asset allocation of 8%. Combined, these strategic asset allocations of 5% and 8% for the default schemes, explain why the portfolio's allocation to property is 7.3%.

Table 3.18 Strategy, Composition and External Managers: CSF

Strategic target range for property	0% to 15% (strategic 5%) for Aggressive (default under age 51); 0% to 20% (strategic 6%) for Moderately Aggressive; 0% to 20% (strategic 8%) for Balanced (default over age of 53 with transition occurring between ages 51 and 53); 0% to 20% (strategic 9%) for Conservative Balanced; 0% to 20% (strategic 9%) for Moderately Conservative; 0% to 25% (strategic 10%) for Conservative; 0% to 15% (strategic 6%) for RetirePlus; 0% to 20% (strategic 6%) for RetireStable.
Composition of property portfolio	<i>Property vehicle:</i> Unlisted property funds (79.45%) and listed property (20.55%). <i>Property type:</i> Office, retail and industrial.
External investment managers	AMP Capital Investors; Barwon Healthcare Property Fund; Goodman Australia Industrial fund; GPT Wholesale Office Fund; Lend Lease Real Estate Investment; Resolution Capital

Source: Catholic Super Fund (2017), Catholic Super Fund (2018) and <http://csf.com.au/>

CSF's investment strategy is to invest in office, retail and industrial property. They do not invest in direct property. The aim is for their indirect property portfolio to be made up of 20% listed property and 80% unlisted property funds. The majority of CSF's unlisted property funds invest in only Australian property. CSF separates their property investments into growth and defensive. The target for the pre-mixed accumulation schemes and the property asset class is for 20% to be invested in growth property and 80% defensive property.

External investment managers are appointed by CSF to make investments in each asset class. Only their cash investments are internally managed. Currently, there are six (6) external investment managers for the property portfolio. Information on how much of the property portfolio they are responsible for are not available. A list of CFS's largest indirect property investments is shown below.

*Largest indirect investments*⁵¹

1. Garden City, Booragoon, WA – Retail
2. Westfield Carindale, NSW – Industrial
3. Silverwater Industrial Park, NSW – Industrial
4. Macquarie Centre, Ryde, NSW – Retail
5. South Coast Private Hospital, NSW – Healthcare
6. Darling Park, NSW – Office
7. Westfield Marion, NSW - Retail
8. Warringah Mall, Brookvale, NSW – Retail
9. Pacific Fair, QLD – Retail
10. 50 Bridge Street, NSW – Office

⁵¹ These are as of the 31st December 2017.



Energy Super is the 47th largest Australian superannuation scheme and is not ranked globally⁵². It was created when two energy industry super funds, Electricity Supply Industry (ESI) Super and SPEC Super, merged in 2011. The members of ESI Super were employed by companies involved in energy generators, distributors and retailing, while SPEC Super’s members worked in the Queensland electrical contracting industry. Members in Energy Super can contribute to a defined benefit scheme or accumulation scheme. However, the defined benefit scheme is only open to members who joined before 2001. Members of the defined benefit scheme can also contribute to an accumulation scheme by making additional contributions above their compulsory contribution as well as rollovers.

Table 3.19 Profile of EnergySuper

Established	2011
Type	Industry scheme
Contributors	Mainly people working in the energy industry.
# pension fund domestically	# 46
# pension fund globally	Not ranked
Asset Administrator	ESI Financial Services Pty Ltd
Assets under management	6.8 billion AUD or 5.2 billion USD
Asset allocations at June 2015	<ul style="list-style-type: none"> a. Property (9.0%) b. Australian Equity (24.6%) c. International Equity (23.3%) d. Cash (18.0%) e. Alternatives (14.4%) f. Fixed Interest (4.2%) g. Infrastructure (5.8%) h. Socially Responsible (0.32%)⁵³ i. Unlisted Equity (0.0%) j. Derivatives (0.2%)

Source: EnergySuper (2017)

Table 3.19 reports that as at the 30th June 2017, EnergySuper held 6.8 billion AUD in AUM. 9.08% of this was allocated to property, which is similar to the allocation in previous years. For the defined benefit scheme, the actual allocation was slightly higher at 10.9%. The asset allocation for some of the accumulation schemes was less. Members can choose to

⁵² The statistics and information on this scheme are as at 30th June 2017 and are taken from EnergySuper (2017) and the scheme’s website, <https://www.energysuper.com.au/>.

⁵³ The Social responsible investment is in the Responsible Investment Leaders Balanced Fund managed by AMP Capital Investors Ltd. This scheme has holdings in Australian equity, International equity, alternative assets, Australian REITs, Global REITs, direct property, Australian bonds, International bonds and cash.

contribute to one of eight pre-mixed accumulation schemes or combine these schemes with investments in four single asset options. Property is not one of the single asset options. Two of the pre-mixed accumulation schemes do not invest in property. Table 3.20 shows that the strategic property target ranges for the pre-mixed schemes investing in property are either 0% to 10% or 0% to 20%. The actual allocation to property by all these schemes is mid-way in their ranges. The default option, MySuper, which the majority of members contribute to, allocated 10.9% to property. This is the same as the allocation by the defined benefit scheme. The strategic property asset allocations for the defined benefit scheme and accumulation schemes have not changed for several years. The actual allocation to property is close to the strategic asset allocations.

Table 3.20 Strategy, Composition and External Managers: EnergySuper

Strategic target range for property	<i>Accumulation schemes</i> - 0% to 10% (actual 5.94%) in Stable; 0% to 10% (actual 5.79%) in Capital Managed; 0% to 20% (actual 10.9%); Balanced 0% to 20% (actual 10.9%) MySuper (default option); 0% to 20% (actual 9.2%) in SRI Balanced; 0% to 20% (actual 11.38%) in Growth. <i>Defined benefit</i> – 0% to 20% (actual 10.9%)
Composition of property portfolio	<i>Property vehicle</i> : Unlisted property funds and listed property. <i>Property Type</i> – Retail and office
External investment managers (% of total property)	Queensland Investment Corporation Ltd (75.3%) and LaSalle Investment Management (14.5%).

Source: EnergySuper (2017) and <https://www.energysuper.com.au/>

EnergySuper regards property as a growth asset and its investment strategy is to invest in core property through unlisted property funds and listed property. All of their investment is undertaken by external investment managers. EnergySuper uses two external investment managers, Queensland Investment Corporation (QIC) and LaSalle Investment Management, to invest in property⁵⁴. Just over two thirds of property investments are in the QIC Property Fund. This is an unlisted property fund adopting a core strategy that is actively managed. It holds domestic property in the form of retail shopping centres in regional Queensland, New South Wales, Victoria, ACT and Western Australia and in office buildings in mainly Brisbane, Queensland. It invests in global property in the form of shopping centres in the United States of America⁵⁵.

⁵⁴ In 2018, EnergySuper replaced LaSalle Club Investment with Investco through the Invesoc US Core Property Fund.

⁵⁵ This information is taken from the QIC Ltd website.

3.3 Summary of the Case Studies

Six observations can be made from the descriptive case studies of the ten Australian superannuation schemes which cover a range of AUM values. Firstly, the superannuation schemes allocate 6.2% to 13.5% of their funds to investing in property. On average, the allocation is 7.9%. Secondly, there has been very little change over the last few years in the property allocation and strategic property target ranges adopted by the superannuation schemes. Thirdly, apart from the Future Fund, they mainly invest in domestic property. Fourthly, their exposure to domestic and overseas property is primarily through investments in unlisted property funds and listed property. Fifthly, core office and core retail are the property types that the superannuation schemes prefer to invest in. Lastly, the smaller superannuation schemes use external investment managers for all their property investments.

The superannuation scheme that had the highest allocation to property, Hostplus, was the 8th largest of the ten superannuation schemes. Its allocation in 2017 was 13.3%, followed by CareSuper with 12.3% and then Cbus with 11%. Domestically, Cbus, Hostplus and CareSuper are the 15th, 19th and 28th largest Australian superannuation schemes respectively. Globally, Cbus and Hostplus are ranked 153rd and 255th of the 300 largest pension funds by Willis Towers Watson. It had been expected that Cbus would have the largest allocation to property, as they maintain on their website and in their Annual Report that their property investments create jobs for their members in the building and construction industries (Cbus, 2017 p.27). A reason for the higher allocation by Hostplus compared to the other superannuation schemes is not available. The allocations by Cbus, Hostplus and CareSuper are at least 2% higher than the other superannuation schemes. The largest four of the ten superannuation schemes allocated close to 8% of their AUM to property. The largest Australian superannuation scheme, the Future Fund, has the smallest allocation at 6.2%. This is slightly smaller than QSuper's 6.34% and UniSuper's 6.8%. As there has been little change in the property allocation by all ten of the superannuation schemes over the past few years, there might be very little change in the future.

Members of all of the superannuation schemes, apart from the Future Fund, mainly contribute to the default accumulation scheme. The Future Fund is a sovereign wealth fund that does not require contributions or currently pay benefits to retirees. The strategic property target ranges for the default accumulation schemes is either 0% to 15%, 0% to 20%, or 0% to 25%. While these ranges are fairly wide, the superannuation schemes' strategic target allocations tend to lie midway or in the lower end of the range. Like their property allocations, the superannuation schemes have not changed their strategic property target ranges for several years.

Seven of the ten superannuation schemes invest in direct property. They are the Future Fund, AustralianSuper, QSuper, UniSuper, Rest, Cbus and Hostplus. The three superannuation schemes that do not invest in direct property, CareSuper, Catholic Super and EnergySuper, are the three smallest superannuation schemes. They may not have sufficient

funds to diversify their property portfolios by investing in direct property. Apart from the Future Fund, the property portfolios of the other superannuation schemes that invest in direct property are mainly made up of investments in indirect property. While the larger superannuation schemes prefer to use joint ventures to maintain control of their property investments, the others predominantly invest in indirect property in the form of unlisted property funds. Eight of the superannuation schemes include listed property in their property portfolios. However, their holdings of listed property are substantially smaller than their holdings of unlisted property funds.

Nine of the superannuation schemes principally invest in retail and office. REST differs from these nine, as it mainly invests in retail followed by residential and then office. Although its allocation to residential is only slightly higher than its allocation to office. REST is one of the five superannuation schemes that invest in residential. The others are the Future Fund, AustralianSuper, QSuper and Hostplus. The level of investment by these four in residential is very small. Eight of the superannuation schemes, the Future Fund, AustralianSuper, QSuper, UniSuper, Cbus, HostPlus, CareSuper and Catholic Super, also invest in industrial. However, they have a stronger preference for office and retail over industrial.

The smaller superannuation schemes mainly use external investment managers to invest in unlisted property funds and listed property funds. These smaller superannuation schemes would find it too expensive to use internal management teams to invest in property.

These case studies of the ten Australian superannuation schemes provide an insight into their property allocation strategies. The next chapter will undertake case studies on ten overseas pension funds. Any similarities and differences in the property allocation strategies adopted by these overseas pension funds and the Australian superannuation schemes can be identified.

CHAPTER 4

CASE STUDIES OF OVERSEAS PENSION FUNDS

Chapter 4 expands on the previous chapter by presenting case studies on the property exposure of ten overseas pension funds. These case studies are compared to the Australian case studies in Chapter 3.

4.1 Introduction

The following case studies are on ten overseas pension funds that invest in property, providing access to a sufficient amount of information, and were located in several countries. The pension funds are listed in the Willis Towers Watson 300 ranking of the largest global retirement funds. They are not the ten largest overseas pension funds. This is because several of the largest pension funds in certain countries do not invest in property or release limited information on their property investments⁵⁶.

4.2 The Overseas Pension Funds

It is compulsory for working Australians to contribute part of their earnings into a superannuation scheme. As explained in the previous chapter, the majority of Australian's contribute to default accumulation schemes. Under government legislation, default schemes are required to include property as one of the asset classes that they invest in. Not all countries require compulsory contribution to pension funds and have pension funds that offer their members the ability to contribute to accumulation schemes.

The following case studies are on overseas pension funds listed by Willis Towers Watson as one of the 300 largest retirement funds. The majority of retirement funds on this list are defined benefit pensions. They were established several decades ago when the traditional plan was a defined benefit plan. In addition, the largest pension funds in most countries are generally public sector or national pension funds, which are typically defined benefit and require compulsory contributions.

The ten pension funds and their global ranking by Willis Towers Watson (2017) are: Government Pension Fund #2 (Norway), National Pension Fund (NPS) #4 (South Korea), Stichting Pensioenfond ABP #5 (Netherlands), California Public Employees Retirement System (CalPERS) #7 (United States), Canada Pension Plan (CPP) #8 (Canada), California State Teachers Retirement System (CalSTRS) # 11 (United States), Ontario Teacher's Pension Plan #18 (Canada), Government Employees Pension Fund (GEPF) #19 (South Africa), Arbejdsmarkedets Tillægspension (ATP) #20 (Denmark) and Alecta #34 (Sweden). Two of the pension funds are located in the United States and two in Canada. The inclusion of two

⁵⁶ The largest pension fund, Japan's Government Pension Investment Fund (GPIF), only began investing in property in January 2018 through eight private REITs (Government Pension Investment Fund, 2018). As there is limited information on this investment, a case study is not undertaken on GPIF.

pension funds from the same country, is because the degree of information available on them is substantially more than the information available on pension funds in other countries. Eight of the case studies are on pension funds that are defined benefit, one is an accumulation (or defined contribution) and two offer their members defined benefit and accumulation. The accumulation pension is Denmark's Arbejdsmarkedets Tillægspension (ATP). The two pension funds that offer both defined benefit pensions and accumulation pensions are located in the United States. They are the California Public Employees Retirement System (CalPERS) and California's State Teacher's Retirement System (CalSTRS). However, close to 99% of their members only contribute to the defined benefit pensions.

All of the Australian superannuation schemes, apart from the Future Fund, in the previous chapter are smaller than the ten overseas pension funds. This is because the overseas pension funds have been in existence for longer than the Australian superannuation schemes and/or have a larger membership base, as they receive contributions from a larger percentage of the total population of their country. The Future Fund is the 32nd largest retirement fund in the world and larger than only one of the overseas pension funds, Alecta, which is the 34th largest. The 2nd largest superannuation scheme in Australia, AustralianSuper, is slightly smaller than Alecta and is ranked the 36th largest globally. The remaining eight Australian superannuation schemes are considerably smaller than these overseas pension funds. For example, QSuper, the 3rd largest Australian superannuation scheme, has assets under management (AUM) close to 50% of Australian Super's AUM.

Like the case studies in Chapter 3, a profile is provided on each pension fund and, if available, information on their strategic property target range, property portfolio composition and use of external investment managers. It was more difficult to obtain publicly available information on the overseas pension funds than it was on superannuation schemes in Australia.

The Norway Government Pension Fund is the largest retirement fund in the world that invested in property prior to 2018⁵⁷. Willis Towers Watson ranks it as the 2nd largest fund globally. It is a sovereign wealth fund that since 1979 has not required contributions from Norwegian citizens, due to the substantial amount of funds that it holds. The pension fund is comprised of two separate funds, the Government Pension Fund Norway (GPFN) and Government Pension Fund Global (GPFG). The funds held by GPFN and GPFG are used to pay the minimum government pension that all Norwegian citizens are eligible to receive. Funds in GPFG can also be used to finance government budget deficits. The AUM of GPFN are substantially smaller than that of GPFG. Table 4.1 reports that as at the 31st December 2017, GPFN's AUM was 250 billion NOK (204 billion USD) and GPFG's AUM was 8,488 billion NOK (6,984 billion USD). GPFN's investment strategy's mandate does not allow it to invest in property, so this case study is on GPFG⁵⁸. The asset allocation to property in GPFG was 2.6% in 2017.

Table 4.1 Profile of the Norway Government Pension Fund

Established	1999
Type	Sovereign wealth fund
Contributors	Revenue from Norwegian oil reserves.
# pension fund domestically	#1
# pension fund globally	#2
Asset Administrator	Norges Bank Investment Management (GPFG) and Folketrygdfondet (GPFN)
Assets under management ⁵⁹	GPFN – 250 billion NOK or 204 billion USD GPFG – 8,488 billion NOK or 6,943 billion USD TOTAL = 8,538 billion NOK or 6,984 billion USD
Asset allocations at December 2017	a. Property (2.6%) b. Equity (66.6%) c. Fixed Income (30.8%)

Source: Folketrygdfondet (2017), Norges Bank Investment Management (2017a) and Norges Bank Investment Management (2017b).

⁵⁷ The statistics and information on this fund are as at 31st December 2017 and are taken from Folketrygdfondet (2017), Norges Bank Investment Management (2017a), Norges Bank Investment Management (2017b), Folketrygdfondet website (<http://www.folketrygdfondet.no>) and Norges Bank Investment Management website (www.nbim.no).

⁵⁸ GPFN was established in 2008 when Norway's National Insurance Fund (Folketrygdfondet), which had been in existence since 1967, was converted to a company.

⁵⁹ Norge Bank Investment Management and Folketrygdfondet report AUM in the Norwegian kroner and USD.

GPIG was created in 2006 when Norway’s Government Petroleum Fund was renamed the GPIG. The Government Petroleum Fund had been set up in 1990 to hold the petroleum revenue generated by the 1969 oil discoveries in Norwegian territory in the North Sea. The funds held in the GPIG are managed by Norges Bank Investment Management⁶⁰. GPIG’s investment strategy mandate states that its strategic target asset allocation is 62.5% for equity and 37.5% for fixed income and property. The property portfolio only contains direct property and unlisted property funds. Its strategic property allocation, as shown in Table 4.2, can be up to 7%. In January 2017, the upper limit was increased from 5% to 7%. The current allocation of 2.6% is less than 50% of the upper limit. This reflects GPIG only being mandated to invest in property since 2012. Listed property is included in the equity portfolio and can only make up to 25% of total property investments. In 2017, listed property accounted for 0.9% of the total asset allocation and just on 25% of the total property portfolio.

Table 4.2 Strategy, Composition and External Managers: GPIG

Strategic target range for property	Up to 7% for direct and unlisted property funds. Listed property funds are included in the equity portfolio and cannot be more than 25% of the total property portfolio.
Composition of property portfolio	<i>Property vehicle:</i> Direct property, joint ventures and listed property. <i>Property type:</i> Office (58.2%), retail (19.4%), industrial (21.1%) and other (0.5%). <i>Location:</i> United States (46.2%), UK (23.5%), France (16.6%), Switzerland (3.9%), Germany (3.5%) and Japan (1.6%). <i>Number of Properties:</i> Europe outside of Norway (414), United States (315) and Japan (5).
External investment managers (% of total property)	Prologis US (12.2%); Prologis Europe (9%); Boston Properties (9%); Trinity Church Wall Street, (8.1%); The Crown Estate (7.9%); TIAA (7%); MetLife, United States (5.2%); AXA Real Estate France (4.7%); British Land (2.7%); AXA Real Estate Germany (2.6%); Kilroy Reality (2.0%); PGIM Real Estate (1.6%); Generali Real Estate (1.6%); Tokyu Land Corporation (1.6%); Oxford Properties Group (0.7%).

Source: Folketrygdfondet (2017), Norges Bank Investment Management (2017a), Norges Bank Investment Management (2017b), <http://www.folketrygdfondet.no> and www.nbim.no.

Norges Bank Investment Management decides on the scope and mix of the property portfolio. All GPIG’s investments must be made outside of Norway. Initially GPIG was only allowed to invest in Europe. The mandate was broadened in 2013 to allow investment outside of Europe. Consequently, they have been investing in property in the United States since 2013 and their first Asian property investment was in 2017 in Tokyo. GPIG only invests in a few countries that have large cities that provide them with transparent exposure to the best property types. Geographically, 46.2% of GPIG’s property investments are located in the United States. This is more than double its level of property investments in other countries.

⁶⁰ The Norges Bank is the central bank of Norway.

The rest of their property portfolio is mainly in the United Kingdom (23.5%) and France (16.6%). GPFG also invests in property in Switzerland (3.9%), Germany (3.5%) and Japan (1.6%). The cities that GPFG mainly invests in are London (22.8%), New York (21.5%) and Paris (19.1%).

Most of GPFG's property portfolio is office (58.2%) followed by industrial (22.1%) and then retail (19.4%). Office is high quality CBD office buildings, while industrial is mainly logistics properties used for warehousing and global distribution centres. Retail is prime high-street property. Since 2016, there has been a 5% decrease in office, little change in industrial, and 5% increase in retail.

GPFG invests in 734 properties through external investment managers. 414 of the properties are located in Europe, 315 in the United States and 5 in Japan. In 2017, they had 100% ownership in 9 of the properties. These 9 properties accounted for 21% of the property portfolio's AUM and are listed below. Five of them are in London, three in Paris and one in Switzerland. The remaining 725 properties are owned in joint venture partnerships with 15 partners. GPFG's ownership shares in these partnerships ranges from 44% to 94.9%. Prologis US (12.2%), Prologis Europe (9%) and Boston Properties (9%) are the partners that GPFG has a slightly higher co-ownership in property with than the other partners. GPFG invests with Prologis US and Prologis Europe in industrial and with Boston Properties in office.

Directly Owned Properties (100%)

1. 9 place Vendome and 368-374 rue Saint-Honore, Paris, France - Office
2. Uetlibergstrasse 231, 8045 Zurich, Switzerland – Office
3. 2 King Edward Street, London, United Kingdom – Retail
4. 3 Old Burlington Street, London, United Kingdom – Office, Retail
5. 6-8 boulevard Haussmann, Paris, France - Office
6. 17-23 boulevard de Madeleine, et 20-26 rue Duphot, Paris, France – Office
7. 75 Davies Street, London, United Kingdom - Office
8. 355-361 Oxford Street, London, United Kingdom – Office, Retail
9. 73-89 Oxford Street, London, United Kingdom – Office, Retail

In 2017, GPFG invested in 17 listed property companies/REITs. These entities are listed below with GPFG's ownership share provided. Their largest ownership share is in Shaftesbury Plc. This share was increased from 9.2% in 2016 to 12.6%. Shaftesbury Plc invests in London West End office, retail and residential. Overall, 50% of the exposure provided by this listed property is to office with smaller exposures to retail, residential, industrial and healthcare. The property investments of these entities are in the same cities as that of the direct property and unlisted property fund investments. The higher exposure to office is consistent with the greater focus by the property portfolio on investing in office. This listed property exposure is in the UK, France, Germany, United States and Sweden.

Listed Property - % ownership share

1. Shaftesbury Plc, London, United Kingdom (12.6%)
2. Great Portland Estates Plc, London, United Kingdom (9.5%)
3. Gecina SA, Paris, France (9.1%)

4. Capital & Counties Properties Plc, London, United Kingdom (7.8%)
5. Vovovia SE, Germany (7.4%)
6. Svenska Cellulosa AB SCA, Sweden (7.2%)
7. Deutsche Wohnen AG, Germany (7.0%)
8. Land Securities Group Plc, United Kingdom (6.9%).
9. Vornado Realty Trust, United States (6.5%)
10. Paramount Group Inc, United States (5.9%)
11. Derwent London Plc, United Kingdom (5.5%)
12. JBG SMITH Properties, United States (5.0%)
13. Boston Properties Inc, United States (4.7%)
14. British Land Co Plc, United Kingdom (4.6%)
15. Kilroy Realty Corp, United States (4.5%)
16. Federal Realty Investment Trust, United States (4.1%)
17. GGP Inc, United States (3.1%)

In 1988, the National Pension Fund (NPF) in South Korea was established under the National Pension Act (1986) to provide pension income to the elderly, people with disabilities or dependents of deceased members. It is a compulsory defined benefit pension that initially only covered workplaces with more than 10 full-time employees. However, since 1999 the pension covers nearly all residents in South Korea between the ages of 18 and 59. It was renamed the National Pension Service (NPS) in 2007. Separate pension plans exist for government employees, military personnel and private school employees. NPS is the largest pension fund in South Korea and the fourth largest globally. Its AUM, as at the 31st December 2017, is shown in Table 4.3 to be 615 trillion Korean won (550.4 billion USD). Property accounted for 3.1% of AUM.

Table 4.3 Profile of National Pension Service

National Pension Service (SOUTH KOREA) ⁶¹	
Established	1988
Type	National Pension fund
Contributors	South Korean citizens
# pension fund domestically	#1
# pension fund globally	#4
Asset Administrator	The Minister of Health and Welfare
Assets under management ⁶²	615 trillion KRW or 550.4 billion USD
Asset allocations at end of December 2017	<ul style="list-style-type: none"> a. Property (3.1%) b. Domestic Equity (21.2%) c. Global Equity (17.4%) d. Domestic Fixed Income (46.6%) e. Global Fixed Income (3.7%) f. Cash (0.3%) g. Other Alternative Investments (7.7%)⁶³

Source: National Pension Service (2017)

Property is in the Alternative Investment class, along with infrastructure, hedge funds and private equity funds, and 10.8% was allocated to this class. NPS uses a five year approach to determine the fund’s asset allocation. As shown in Table 4.4, there is no set strategic target range for property, only a target of 10% or more for the Alternative Investment class. In December 2017, the asset allocation of 10.8% met this target, of which 3.1% is invested in property. The allocation to property at 3.1% made up 29% of the Alternative Investment class asset allocation.

⁶¹ The statistics and information on this fund are as at 31st December July 2017. They are taken from National Pension Service (2017) and the fund’s website <http://www.nps.or.kr/jsppage/main.jsp>.

⁶² The USD equivalent was calculated using the daily mid-point exchange rate of one Korean Won being the equivalent of 0.0009 United States dollars on 31st July 2013 as quoted on www.oanda.com.

⁶³ The Other alternative investments are infrastructure, hedge fund and private equity fund (PEF).

Table 4.4 Strategy, Composition and External Managers: NPS

Strategic target range for property	No set target range for property but the Alternative Investment class has a target of 10% or more.
Composition of property portfolio	<i>Property vehicle:</i> Direct property <i>Property type:</i> Office and retail. <i>Investment style:</i> Core (74%) Non-Core (26%) <i>Location:</i> South Korea (26%). Overseas (74%) - North America (36%); Europe (14%); Asia (13%); Australia (6%); Emerging Markets (0.2%); other (10%)
External investment managers	Not available

Source: National Pension Service (2017) and <http://www.nps.or.kr/jsppage/main.jsp>.

NPS has mainly invested in direct office property, both domestically and overseas. It also invests in direct retail property, but the majority of its property portfolio are investments in office. 74% of NPS’s property investments are core and 26% non-core. In 2017, NPS began to invest in residential property when they invested in multi-family housing in the United States. Since 2014, NPS has been increasing the level of funds it invests in overseas Alternative Investments relative to domestic investments. Geographically, 26% of the property investments are in South Korea and 74% in overseas locations. Just over a third of overseas property investments are in the United States (36%) followed by Europe (14%), Asia (13%) and Australia (6%). NPS uses external investment managers, domestically and globally, to purchase direct property on their behalf. The list of their largest overseas direct property investments is provided below. Information is not available on their direct property investments in South Korea.

Largest holdings in direct property investments:

1. 40 Grosvenor Place, London, United Kingdom – Office
2. Pacific Century Plaza, Beijing, China – Retail and Office
3. Jem Shopping Mall, Jurong East, Singapore – Retail
4. Mainzero, Frankfurt, Germany – Office
5. Aurora Place, Sydney, Australia – Office
6. Islazul Shopping Mall, Madrid, Spain - Retail
7. Sequana Tower, Paris, France - Office



Stichting Pensioenfondsvoor ABP (ABP) is the largest pension fund in the Netherlands and globally ranked as the 5th largest pension fund in the world⁶⁴. It was created in 1996, following the privatisation of Algemeen Burgerlijk Pensioenfondsvoor (Dutch Civil Servants Pension Fund) which was established in 1922. ABP is a compulsory defined benefit pension fund for public sector and education sector employees⁶⁵.

Table 4.5 Profile of Stichting Pensioenfondsvoor ABP

ABP (NETHERLANDS)	
Established	1996
Type	Public sector fund
Contributors	Public sector and Education employees
# pension fund domestically	#1
# pension fund globally	#5
Asset Administrator	APG Group
Assets under management ⁶⁶	409 billion EUR or 491 billion USD
Asset allocations at December 2017	<ul style="list-style-type: none"> a. Property (9.8%) b. Developed Market Equity (26.5%) c. Emerging Market Equity (8.7%) d. Fixed Income (36.8%) e. Private Equity (4.7%) f. Commodities (4.4%) g. Hedge Funds (4.4%) h. Infrastructure (2.7%) i. Others (2.1%)⁶⁷

Source: Stichting Pensioenfondsvoor ABP (2017)

Table 4.5 reports that as at 31st December 2017, ABPs AUM was 409 billion EUR (491 billion USD). The asset allocation to property is 9.8%. Fixsen and Preesman (2017) report that this allocation has not changed since the end of the global financial crisis. ABP also has the largest holding of property investments by Netherland pension funds. Its level of property investments is double the amount held by the pension fund with the second largest holding. The majority of ABP’s property portfolio is made up of unlisted property funds and listed property. Prior to the 1990s, ABP mainly invested in direct property. However, in the 1990s, they began to switch to investing in indirect property. ABP regard it as being easier to invest

⁶⁴ The statistics and information on this pension fund are as at 31st December 2017 and are taken from Stichting Pensioenfondsvoor ABP (2017) and the website <https://www.abp.nl/english/>.

⁶⁵ Anyone who has lived in the Netherlands between the ages of 15 to 67 is eligible to also receive the AOW government pension.

⁶⁶ The USD equivalent was calculated using the daily mid-point exchange rate of EUR 1 = USD 1.1999 on 31st December 2017 as quoted on www.ofx.com/en-au/forex-news/historical-exchange-rates/

⁶⁷ Others is an Opportunity fund and Overlay.

in global property that generates a higher return through unlisted property funds and listed property. Following their privatisation in 1996, they created three separate property funds for retail, office and residential property investments. They are Winkel Beleggingen Nederland (Retail), Kantorenfonds NL (Office) and Vesteda (Residential) (Van Loon and Aalbers, 2017, p.231-232). Table 4.6 shows that retail (41.7%) is the main property type that ABP invests in followed by residential (24%), industrial (15.6%), office (14.2%) and then hotels (4.56%). There has been little change in these percentages since 2016. The preferred regions that ABP invests in property are Europe (45%), followed by the Americas (35%) and then Asia-Pacific (21%).

Table 4.6 Strategy, Composition and External Managers: ABP

Strategic target range for property	Not available
Composition of property portfolio	<i>Property vehicle:</i> Unlisted property funds and listed property. <i>Property Type:</i> Retail (41.7%), Residential (24%) Industrial (15.6%). Office (14.2%), Hotels (4.56%) <i>Location</i> ⁶⁸ : Europe (45%), Americas (35%) and Asia-Pacific (21%).
External investment managers	Not available

Source: Stichting Pensioenfonds ABP (2017) and <https://www.abp.nl/english/>

11% of ABP's property investments are internally managed and 88.6% undertaken through external investment managers. ABP does not provide information on the external investment managers it invests in property through. Listed below are ABP's top ten largest listed property investments along with their market value.

Listed Property (market value)

1. Vesteda (EUR 1,576 million)
2. Kleoierre SA (EUR 1,332 million)
3. Unibail-Rodamco SE (EUR 1,193 million)
4. Prologis Inc (EUR 932 million)
5. Simon Propert Group Inc (EUR 1,039 million)
6. Steen and Strom (EUR 1,034 million)
7. European Outlet Mail Fund (EUR 837 million)
8. Equity Residential (EUR 776 million)
9. Public Storage (EUR 735 million)
10. Sonae Imobiliaria ERRA Fund (EUR 718 million)

⁶⁸ ABP manages real assets, which are property, infrastructure and natural resources, in the same portfolio. Consequently, these percentages are for property, infrastructure investment and natural resources. However, the majority of the portfolio are property investments.



The California Public Employees Retirement System (CalPERS) was first established in 1931 as the State Employee’s Retirement System⁶⁹. In 1962, the name was changed to Public Employees’ Retirement System and then to CalPERS in 1992. Members of this scheme are employees of the public sector (e.g. state employees including school and public agency employees) in California. It is the second largest pension fund in the United States and the 7th largest pension fund in the world⁷⁰. CalPERS is compulsory for the employees and offers its members defined benefit and accumulation pensions. However, close to 99% of the members contribute to the defined benefit pension.

Table 4.7 Profile of CalPERS

California Public Employees Retirement System (CalPERS) (USA)	
Established	1932
Type	Public sector
Contributors	Employees of public sector in California
# pension fund domestically	#2
# pension fund globally	#7
Asset Administrator	CalPERS Investment Office
Assets under management	326 billion USD
Asset allocations at 30 th June 2017	<ul style="list-style-type: none"> a. Property (9.4%) b. Global Equity (48.3%) c. Private Equity (8.0%) d. Fixed Income (19.4%) e. Inflation (7.8%)⁷¹ f. Cash (4.8%) g. Other (2.3%)⁷²

Source: CalPERS (2017a) and CalPERS (2017b).

Table 4.7 shows as at the 30th June 2017, CalPERS AUM was 326 billion USD with 9.4% being allocated to property. This allocation is consistent with the allocations in recent years, but slightly below the strategic interim target of 11% shown in Table 4.8. CalPERS investment strategy, as set out in their strategic plan update in 2016, is to focus on core property investments in the United States (CalPERS, 2016). CalPERS target range for investing in the United States is 75% to 100%, 0% to 25% in international developed countries, 0% to 15% in emerging countries and 0% to 5% in frontier countries⁷³. Currently, there are no property

⁶⁹ The statistics and information on this fund are as at 30th June 2017. They are taken from CalPERS (2016), CalPERS (2017a), CalPERS (2017b) and the fund’s website <https://www.calpers.ca.gov/>.

⁷⁰ Federal Retirement Thrift is the largest pension fund in the United States and the third largest globally. Insufficient information is publicly available on this pension fund.

⁷¹ The Inflation class is made up of commodities and inflation-linked bonds.

⁷² This consists of forestland, infrastructure and absolute return equity strategies.

⁷³ Frontier countries are developing countries that are not regarded as large enough to be an emerging country.

investments in international developed countries or frontier countries. 94% of the property portfolio is in the United States and 6% in emerging countries. 29% of the property is in California. This is consistent with CalPERS investment strategy requirement for a high concentration of investments in California to support employment and businesses in the areas that the members reside in.

Table 4.8 Strategy, Composition and External Managers: CalPERS

Strategic target range for property	Since June 2016 the interim strategic target had been 11%. <i>Investment style:</i> Core (75% to 100%); Value-added (0% to 25%); Opportunistic (0% to 25%). <i>Location:</i> United States (75% to 100%); overseas developed countries (0% to 25%); emerging countries (0% to 15%); frontier countries (0% to 5%).
Composition of real estate portfolio	<i>Property vehicle:</i> Direct property, joint ventures, unlisted property funds and listed property. <i>Property Type:</i> Retail (28.7%), office (28.7%), residential (23.0%) and industrial (19.5%) ⁷⁴ . <i>Investment Style:</i> Core (71%), value-added (12%) and opportunistic (17%). <i>Location:</i> United States (94%) in California (29%), East Coast (23%), non-California West Coast (14%), Midwest (14%), South (12%) and other (2%). Emerging countries (6%) in Asia-Pacific region (3%), European Union (1%) and South America (2%).
External investment managers	Miller Capital Advisory, Inc. (20.6%), GI partners (17.1%), Commonwealth Partners (14.7%), General Investment and Development Advisors (13.6%), First Washington Reality (6.7%), CIM Group (4.5%), Hines (3.9%), Institutional Housing Partners (3%), ARA Asset Management Limited (3%), Pacific Urban Residential (2.7%), Bentall Kennedy (2%), Invesco (2%), Resmark Equity Partners (1.4%) and others (4.7%).

Source: CalPERS (2016), CalPERS (2017a), and CalPERS (2017b) and <https://www.calpers.ca.gov/>.

The target range for core is 75% to 100%, 0% to 25% for value-added and 0% to 25% for opportunistic. CalPERS core property falls just below this range at 71%. However, the level of investment in core is three times greater than the 12% invested in value-added and 17% invested in opportunistic. In terms of property type, retail and office make up close to 60% of the property portfolio. CalPERS invests in core and opportunistic office, retail, industrial and residential in the United States. The value-added investments in the United States are in industrial. The majority of residential is multifamily, with core only being multifamily and opportunistic being multifamily and other forms of residential. In the emerging countries, only value-added and opportunistic property are invested in.

⁷⁴ The percentages were extrapolated from the figures in CalPERS (2017a).

CalPERS invests in direct property and indirect property through unlisted property funds and listed property⁷⁵. It does not use internal management. Instead, CalPERS invests through twenty four external investment managers. These external managers differ in terms of their investment style, location and property type. Eight invest in core, two in value-added and fourteen in opportunistic. Four of the external managers are responsible for two thirds of the property investments. They are Miller Capital Advisory (20.6%), GI Partners (17.1%), CommonWealth Partners (14.7%), and General Investment and Development Advisors (13.6%). Miller Capital Advisory invests in retail property, while GI Partners and CommonWealth Partners both invest in office. General Investment and Development Advisors invests in residential in the form of multifamily.

⁷⁵ CalPERS reports its holdings of direct property as separate accounts; unlisted property funds as commingled funds; and listed property as real estate operating companies. Real estate operating companies are like REITs, except they reinvest earnings rather than distributing them.

The Canada Pension Plan (CPP) is a compulsory defined benefit pension created in 1965 by the federal and provincial governments in Canada⁷⁶. Provincial governments are able to run their own programs. Currently Quebec is the only province to this. The structure of the Quebec program is very similar to that of the CPP. The CPP has been administered by the CPP Investment Board (CPPIB) since 1997, following a period when payments being made by CPP were exceeding the contributions.

Table 4.9 Profile of Canada Pension Plan

Canada Pension Plan (Canada)	
Established	1965
Type	National Pension Fund
Contributors	Canadian citizens
# pension fund domestically	#1
# pension fund globally	#8
Asset Administrator	CPP Investment Board
Assets under management ⁷⁷	316.7 billion CAD or 237.9 billion USD
Asset allocations at 31 st March 2017	<ul style="list-style-type: none"> a. Property (12.6%) b. Domestic Equity (3.3%) c. International Equity (33.6%) d. Private Equity (18.5%) e. Fixed Income (21.5%) f. Infrastructure (7.7%) g. Other (2.8%)

Source: CPP Investment Board (2017)

CPP is the largest pension fund in Canada and 8th largest pension fund globally. Table 4.9 reports that as at the 31st March 2017, CPP's AUM was 316.7 billion CAD (237.9 billion USD), with 12.6% being allocated to property. This allocation is similar to the property allocations in previous years. No information is available on CPP's strategic target range for its asset allocation. The investment strategy of CPP is to invest mainly in core overseas property. The CPPIB began investing in property in 2005 and initially only invested in core. However, they now also invest in value-added property when they consider it will be profitable. 83.5% of the AUM consists of overseas investments and 16.5% in Canadian investments. Geographically, 86% of the property investments are in ten developed countries, Canada, United States, United Kingdom, Germany, Spain, Sweden, Australia, New

⁷⁶ The statistics and information on this fund are as at 31st March 2017. They are taken from CPP Investment Board (2017) and the CPP website <http://www.cppib.com/>.

⁷⁷ The USD equivalent was calculated using the daily mid-point exchange rate of one Canadian dollar being the equivalent of 0.751408 United States dollars on 31st March 2017 as quoted on www.ofx.com/en-au/forex-news/historical-exchange-rates/

Zealand, Japan and Singapore, and 14% in four emerging countries, Brazil, China, Korea and India. The property portfolio is made up of 121 properties, with 41.5% being located in the United States, 15.5% in China and 12.5% in Canada. As shown in Table 4.10, the property in both the United States and Canada is in office, retail, industrial and residential. In China, it is mainly industrial, although they have invested in two retail properties in China. The residential property investments are in three countries, Canada, the United States and the United Kingdom, in the form of multifamily, senior living and student housing.

Table 4.10 Strategy, Composition and External Managers: CPP

Strategic target range for property	Not available
Composition of real estate portfolio	<p><i>Property vehicle:</i> Direct property, joint ventures, unlisted property funds and listed property funds.</p> <p><i>Property type:</i> Office, retail, industrial and residential⁷⁸.</p> <p>Office – Canada, United States, United Kingdom, New Zealand, Korea, Brazil, China and India.</p> <p>Retail - Canada, United States, United Kingdom, New Zealand, Korea, Brazil, China and India</p> <p>Industrial - Canada, United States, United Kingdom, Australia, Brazil, China, India, Korea, Germany, Spain and Sweden.</p> <p>Residential – Canada, United States, and United Kingdom.</p> <p><i>Investment Style:</i> Core and value-added.</p> <p><i>Location:</i> United States (41.5%), Canada (12.5%), China (15.5%), United Kingdom (7.5%), Japan (6%), Australia (5%), Brazil (6%), India (1.5%), Spain (1%), Sweden (1%), Singapore (1%), Korea (1%), New Zealand (0.5%) and Germany (0.5%).⁷⁹</p>
External investment managers	Not available

Source: CPP Investment Board (2017) and <http://www.cppib.com/>.

The global mandate of CPP directs it to invest in indirect property through joint ventures. However, CPP has 100% ownership of Liberty Living in the United Kingdom which they acquired in 2015. Liberty Living provides student accommodation at several locations across the United Kingdom. It was CPP’s first investment in the student accommodation sector. CPP is in joint ventures with sixty partners. In these, CPP has a significant co-ownership share. Several of the joint ventures are for several properties with the same partner. For example, CPP is in partnership with Goodman Group for all its industrial property investments in China and all but one in the United States. For the Chinese properties, CPP’s ownership share is 80%, while in the United States it is 45%. The ownership share for 20% of its 121 properties is more than 50%, for 70% the share is 40% to 50%, and for 10% the share is less than 40%. The large value properties that CPP has an ownership share of close to 50% are listed below.

⁷⁸ CPP’s property portfolio consists of equity and private real estate debt (first mortgages and mezzanine loans). The debt component is not included as this thesis only looks at equity ownership in real estate.

⁷⁹ The percentages indicate the number of properties held by CPP in these countries.

Direct and Indirect investments - % ownership share:⁸⁰

1. Liberty Living, London, United Kingdom (100%) – Residential (student accommodation)
2. Indospace, India (98%) - Industrial
3. Centro Shopping Centre, Oberhausen, Germany (50%) – Retail
4. SP Infocity, Chennai, India (80%) – Office
5. Waterpark Place, Toronto, Canada (75%) - Office
6. Milton Park, Oxford, United Kingdom (50%) - Office
7. Westfield Southcenter, Seattle, Washington, United States (45%) - Retail
8. Les Galleries de la Capitale, Quebec City, Province of Quebec, Canada (50%) – Retail
9. Carrefour de l'Estrie, Sherbrooke, Province of Quebec, Canada (50%) – Retail
10. D-Cube Department Store, Korea (50%) – Retail

⁸⁰ These were chosen based on the property square feet and the partnership interest being close to 50%.



California’s State Teacher’s Retirement System (CalSTRS) was established in 1913 to provide employees in Californian public schools with an incentive to work as a teacher in California for their entire working life. This was done by guaranteeing them financial support when they retire⁸¹. It is a compulsory defined benefit pension and the largest public teachers’ pension fund in the United States. In the United States, it is the 3rd largest pension fund and globally the 11th largest. Table 4.11 reports that on the 30th June 2017, CalSTRS’s AUM was 208.7 billion USD. The asset allocation to property was 12.6%, which is similar to previous year’s allocations.

Table 4.11 Profile of CalSTRS

California State Teachers Retirement System (CalSTRS) (USA)	
Established	1913
Type	Public sector
Contributors	Employees in California Public Schools
# pension fund domestically	#3
# pension fund globally	#11
Asset Administrator	Investments Branch
Assets under management	208.7 billion USD
Asset allocations at 30 th June 2017	<ul style="list-style-type: none"> a. Property (12.6%) b. Global Equity (56.4%) c. Private Equity (8.1%) d. Fixed Income (14.7%) e. Cash (1.5%) f. Other (6.7%)

Source: CalSTRS (2017a) and CalSTRS (2017b)

CalSTRS target allocation for property is 13% with a target range of 9% to 15%. The current asset allocation of 12.6% is just below the target allocation and lies within the target range. Over the past decade, CalSTRS has focused on increasing their holding of core property over value-added and opportunistic property. Their investment strategy has a target allocation of 60% to core, 20% to value-added and 20% to opportunistic. As shown in Table 4.12, in 2017 CalSTRS exceeded the target for core with an allocation of 63.5%. Geographically, CalSTRS mainly invests in property in the United States with overseas property only making up 8.1% of the property portfolio.

⁸¹ The statistics and information on this fund are as at 30th June 2017. They are taken from CalSTRS (2017a), CalSTRS (2017b) and the CalSTRS website <http://www.calstrs.com/>.

Table 4.12 Strategy, Composition and External Managers: CalSTRS

Strategic target range for property	The strategic target range is 9% to 15% and the target allocation is 13%.
Composition of property portfolio	<p><i>Property vehicle:</i> direct property (28%), joint venture (34%) and unlisted property fund (38%).</p> <p><i>Property type in the controlled portfolio:</i> Office (37%), residential (26%), retail (19%), industrial (12%) and land (5%).</p> <p><i>Investment Strategy:</i> core (63.5%), value-added (15%), opportunistic (21.5%).</p> <p><i>Location:</i> United States (91.9%) and overseas (8.1%). For the controlled portfolio this is in Western states (51%), Eastern states (22%), Midwest states (6%), Southern states (19%), International (2%).</p>
External Investment Managers	There are 65 and the top 15 are Principal (17%), CBRE Global Investors (12%), BlackRock (6%), GI Partners (6%), Lionstone (5%), BlackStone (5%), ING Clarion (5%), Fairfield (4%), Fortress (4%), Pacific Coast Capital (4%), LaSalle (3%), Invesco (2%), Beacon Capital (2%), JP Morgan (2%), Lone Star (2%)

Source: CalSTRS (2017a), CalSTRS (2017b) and <http://www.calstrs.com/>

CalSTRS invests in direct property and indirect property through joint ventures and unlisted property funds⁸². Since 2010, they have mainly invested in property through direct property and joint ventures to ensure they maintained control over their property investments. In 2017, 62% of their property portfolio was accounted for by sole ownership and joint ventures. CalSTRS refers to this as their controlled portfolio. Very little information is available on CalSTRS investments in unlisted property funds. The controlled portfolio contains 372 properties, with CalSTRS having 100% ownership in 13 of them and the others being co-owned with joint venture partners. The largest properties which CalSTRS has 100% ownership in are listed below.

Largest ten holdings in direct property investments:

1. The Plaza, Los Angeles, California, United States – Office
2. 300 West Sixth, Austin, Texas, United States – Office
3. One American Centre, Austin, Texas, United States - Office
4. Hill County Galleria, Austin, Texas, United States – Retail
5. Lake Merritt Plaza, Oakland, California, United States - Office
6. Frost Bank Tower, Austin, Texas - Office

Just over 50% of the property investments in this controlled portfolio are located in the western states of the United States, particularly in California. CalSTRS has been increasing its exposure to office and decreasing its exposure to industrial and residential. For the controlled portfolio, 37% is in office, 26% in residential, 19% in retail 19% and 12% in industrial. The residential component is multifamily properties and student housing. 83% of

⁸² CalSTRS reports its holdings of direct property as separate accounts and unlisted property funds as joint ventures and commingled funds.

the property in the controlled portfolio is core. This is substantially higher than the 70% average over the past five year period.

Sixty five external investment managers are used by CalSTRS to invest in property. Currently, 80% of the property portfolio is managed by 15 of these external investment managers with two, Principal and CBRE Global Investors, managing 30%. Principal invests in industrial, retail and residential on behalf of CalSTRS, while CBRE Global Investors invests in office and industrial. The other 13 top managers, apart from Pacific Coast Capital, invest in only one property type for CalSTRS⁸³. The remaining 50 external investment managers account for only 20% of the property portfolio.

⁸³ Pacific Coast Capital invests in residential, office and retail but is only responsible for 4% of the property portfolio.



The government of the Canadian province Ontario established the Ontario Teacher’s Pension Plan (OTPP) in 1990⁸⁴. It replaced a pension plan that had been solely sponsored by Ontario government since 1917 and only invested in non-marketable Province of Ontario debentures. OTPP is a non-compulsory defined benefit pension, the 2nd largest pension fund in Canada and globally the 18th largest pension fund.

Table 4.13 Profile of Ontario Teacher’s Pension Plan

Ontario Teacher’s Pension Plan (Canada)	
Established	1990
Type	Industry fund
Contributors	Canadian school teachers
# pension fund domestically	#2
# pension fund globally	#18
Administrator	Ontario Teacher’s Pension Plan Board
Assets under management ⁸⁵	185.4 billion CAD or 147.46 billion USD
Asset allocations at December 31 st 2017	<ul style="list-style-type: none"> a. Property (9.6%) b. Public Equity (13.3%) c. Private Equity (12.1%) d. Fixed Income (28.4%) e. Infrastructure (7.1%) f. Inflation Sensitive (10.1%)⁸⁶ g. Cash (14.9%)⁸⁷ h. Others (4.6%)⁸⁸

Source: *Ontario Teacher’s Pension Plan (2017)*

Table 4.13 reports that as at the 31st December 2017, OTPP’s AUM was valued at 185.4 billion Canadian dollars (147.46 billion USD) with 9.6% of this allocated to property. This is similar to the allocation in previous years. Property and infrastructure are in the Real Asset class and their combined asset allocations are close to the strategic target of 16% shown in Table 4.14. No strategic target ranges or strategic asset allocation are available for property. All investments in property by OTPP are undertaken by their subsidiary company Cadillac

⁸⁴ The statistics and information on this fund are as at 31st December 2017. They are taken from Ontario Teacher’s Pension Plan (2017) and the Ontario Teacher’s Pension Plan website <http://www.otpp.com/>.

⁸⁵ The USD equivalent was calculated using the daily mid-point exchange rate of one Canadian dollar being the equivalent of 0.795387 United States dollars on 31st December 2017 as quoted on www.ofx.com/en-au/forex-news/historical-exchange-rates/.

⁸⁶ The inflation sensitive class is made up of commodities, natural resources and inflation hedge products.

⁸⁷ OTPP deducts the cash and money market asset class when calculating net investments as this class is used to fund other asset classes. Consequently in their Annual Report OTPP the money market class is a negative number which leads to the AUM being 185.4 billion CAD instead of 264.5 billion CAD (OTTP 2017, p. 18)

⁸⁸ Others includes real-rate products and absolute return strategies.

Fairview Corporation Limited. OTPP purchased this company in 2000 and its only interest is to create a successful property portfolio for OTPP.

Table 4.14 Strategy, Composition and External Managers: OTPP

Target range for property	Real Asset class target range 11% to 21% with strategic target of 16%.
Composition of property portfolio	<i>Property vehicle:</i> Direct property (28%) and indirect property (72% in joint ventures and unlisted property funds). <i>Property type in Canada:</i> Retail (73.8%) and office (26.2%). <i>Location:</i> Canada (84%), United States (7%), Latin America (8%) and other (1%).
External Investment Managers	Macerich, Multiplan, Terranvm, Golgi and Grupo Sordo Madeleno

Source: Ontario Teacher's Pension Plan (2017) and <http://www.otpp.com/>

The investment strategy adopted by Cadillac Fairview Corporation Limited is to invest in core retail and office. They prefer to directly own properties through a 100% effective ownership share. Most of the direct property is located in Canada, particularly in Vancouver, Calgary, Toronto and Montreal. A list of the ten properties valued at over 150 million USD that OTPP has 100% ownership in are listed below.

*Largest ten holdings in direct property investments:*⁸⁹

1. Toronto Eaton Centre, Toronto, Canada - Retail
2. Toronto Eaton Centre Office Complex, Toronto, Canada – Office
3. Le Carrefour Laval, Montreal, Canada – Retail
4. Polo Park Mall, Winnipeg, Canada – Retail
5. Rideau Centre, Ottawa, Canada – Retail
6. Chinook Centre, Calgary, Canada – Retail
7. Les Promenades St.Bruno, Montreal, Canada – Retail
8. Sherway Gardens, Toronto, Canada – Retail
9. Markville Shopping Centre, Markham, Canada - Retail
10. City Centre Office, Calgary, Canada - Office

OTPP's overseas property investments are as joint ventures with partners in the United States, Brazil, Colombia, and Mexico. The countries in Latin America are emerging countries that Cadillac Fairview Corporation Limited views have high quality properties to invest in. These joint venture partners are listed below.

Overseas property investment partners:

1. Macerich, United States – Retail
2. Terranum Development, Columbia and Mexico - Office
3. Grupo Sordo Madaleno, Columbia and Mexico - Office
4. Multiplan, Brazil – Retail, office and residential
5. Golgi, Brazil - Office

⁸⁹ These were chosen based on the square feet of the property and OTPP's effective ownership being 100%.



The Government Employees Pension Fund (GEPF) was created in 1996 as a result of the amalgamation of 10 public service funds in South Africa⁹⁰. These funds received contributions from and paid benefits on retirement to individuals employed in the public sector and South African National Defence Force. GEPF is the largest pension fund in South Africa and the 19th largest globally. It is a non-compulsory defined benefit pension and in 2004 the South African Government created the Public Investment Corporation (PIC) to manage the asset investments of GEPF. The PIC is the only asset manager of South Africa’s public sector.

Table 4.15 Profile of the Government Employees Pension Fund

Government Employees Pension Fund (GEPF) (South Africa)	
Established	1996
Type	Public Sector fund
Contributors	Public Sector and Military personnel
# pension fund domestically	#1
# pension fund globally	#19
Asset Administrator	Public Investment Corporation (PIC)
Assets under management ⁹¹	1.67 trillion ZAR or 124.83 billion USD
Asset allocations at 31 st March 2017	<ul style="list-style-type: none"> a. Property (6%) b. Domestic Equity (49%) c. International Equity (6%) d. Fixed Income (35%) e. Cash (4%)

Source: GPEF (2015), GPEF (2017) and <http://www.gepf.gov.za/>.

Table 4.15 reports that as at the 31st March 2017, GEPF’s investment portfolio was valued at 1,670 billion South African rand (124.83 billion USD) with 6% of this being invested in real estate. This allocation to property is 1% higher than the allocations since 2013 and the strategic asset allocation of 5% shown in Table 4.16. However, it is within the strategic target range of 3 to 7%. GEPF’s mandate requires that the majority of its investments are in South Africa and the African continent. This is in order to promote economic and financial development in the African region. As a result, there is no global diversification in GEPF’s

⁹⁰ The statistics and information on this fund are as at 31st March 2017. They are taken from GPEF (2015), GPEF (2017) and the GPEF website <http://www.gepf.gov.za/>.

⁹¹ The USD equivalent was calculated using the daily mid-point exchange rate of one South African rand being the equivalent of 0.074749 United States dollars on 31st March 2017 as quoted on www.ofx.com/en-au/forex-news/historical-exchange-rates/

property portfolio. In 2017, a strategic target range of 0% to 2%, where a strategic asset allocation of 1% was introduced for investing in property in the rest of Africa. GEPF's investment strategy is to invest mainly in core property using a passive management approach. This is because the size of GEPF is substantial relative to South Africa's investment markets. Consequently, any active management of GEPF's asset classes would have a significant impact on property prices.

Table 4.16 Strategy, Composition and External Managers: GEPF

Strategic target range for property	<i>Domestic property: 3% to 7% with strategic asset allocation of 5%. Rest of Africa: 0% to 2% with strategic asset allocation of 1%.</i>
Composition of real estate portfolio	<i>Property vehicle: Direct property Property type: Office (59.4%), retail (28.0%), industrial (12.1%), residential (0.8%) and other (3.5%)⁹².</i>
External Investment Managers	None

Source: GPEF (2015), GPEF (2017) and <http://www.gepf.gov.za/>

GEPF's property portfolio only invests in direct property. While the properties are only located in South Africa, there is some diversification across property type. GEPF mainly invests in office (59.4%) followed by retail (28.0%) and industrial (12.1%). They hold a very small amount of residential (0.8%). All property investments for GEPF are undertaken by the Public Investment Corporation (PIC). The ten largest of these properties are listed below.

Largest ten holdings in direct property investments:

1. Centre Square Development, Pretoria, South Africa - Office and Retail
2. Central City Shopping Centre, Mabopane, South Africa - Retail
3. Trevenna, Pretoria, South Africa – Industry
4. Vantgate Shopping, Cape Town, South Africa – Retail
5. Riverwalk Office Park, Pretoria, South Africa – Office
6. Business Connexion, Zwartkop, South Africa - Office
7. Discovery Health, Sandton, South Africa - Industrial
8. Joggie Vermooten, Durban, South Africa - Industrial
9. Thembisa, Ekurhuleni, South Africa – Retail
10. GijimaAst Holdings, Kosmosdal, South Africa – Industrial

⁹² This is made up of specialised property, which GEPF does not define, and land.



In Denmark, all citizens are eligible for a state-old age pension financed by taxation. However, in 1964 a mandatory accumulation pension, Arbejdsmarkedets Tillagspension (ATP), was established to ensure that Danish citizens would enjoy a higher minimum pension⁹³. Mandatory supplementary occupational pension schemes already existed in Denmark, but they were mainly available to public sector employees. ATP is for all wage earners and most recipients of transfer income. Individuals who are self-employed, recipients of voluntary early retirement benefits or recipients of Danish flexi job scheme are not covered by ATP. However, these individuals can choose to make voluntary contributions to ATP.

Table 4.17 Profile of Arbejdsmarkedets Tillagspension

Arbejdsmarkedets Tillagspension (ATP) (Denmark)	
Established	1964
Type	National pension fund
Contributors	Danish citizens
# pension fund domestically	#1
# pension fund globally	#20
Administrator	ATP's Pension and Investments and for real estate ATP Ejendomme A/S and ATP Real Estate.
Assets under management ⁹⁴	701 billion DKK or 113 billion USD Only DC
Asset allocations at 31 st December, 2017	<ul style="list-style-type: none"> a. Property (16.4%) b. Domestic equity (11.0%) c. International Equities (12.0%) d. Private Equity (12.1%) e. Fixed Interest (35.3%) f. Infrastructure (11.7%) g. Other (2.1%)

Source: Arbejdsmarkedets Tillagspension (2017) and ATP's websites <http://www.atp.dk/en>; <https://www.atp-ejendomme.dk/> and <https://www.atp-realestate.dk/>

ATP is the largest pension fund in Denmark and the 20th largest pension fund globally. Table 4.17 reports that, according to Willis Towers Watson, ATP's AUM, as at the 31st December 2017, was 701 billion Danish krone (113 billion USD). The allocation to property is 16.4% and, while administered by ATP's Pension and Investment team, the investments are undertaken by two wholly owned subsidiaries. ATP invests directly and indirectly in property.

⁹³ The statistics and information on this fund are as at 31st December 2017. They are taken from Arbejdsmarkedets Tillagspension (2017) and ATP's websites <http://www.atp.dk/en>; <https://www.atp-ejendomme.dk/> and <https://www.atp-realestate.dk/>.

⁹⁴ The USD equivalent was calculated using the daily mid-point exchange rate of one Danish Krone being the equivalent of 0.16116 United States dollars on 31st December 2017 as quoted on www.ofx.com/en-au/forex-news/historical-exchange-rates/.

The subsidiary ATP Ejendomme A/S manages ATP's direct property investments while the subsidiary ATP Real Estate manages ATP's indirect property investments. Direct property makes up 72.67% of the property portfolio and indirect property 27.33%. The indirect property investments are in the form of joint ventures and unlisted property funds with only a small number of investors. In 2017 ATP directly owned 80 properties and had indirect property investments in 19 joint ventures and 12 other unlisted property funds.

Table 4.18 Strategy, Composition and External Managers: ATP

Target range for portfolio	Not available
Composition of property portfolio	<p><i>Property vehicle:</i> Direct investments (72.67%) and indirect investments (27.33%) in the form of joint ventures and unlisted property funds.</p> <p><i>Property type</i> – Mainly office and retail and some residential</p> <p><i>Investment Strategy</i> – Direct property (core) and indirect property (core, value-added and opportunistic).</p> <p><i>Location</i> – Denmark, Germany, Belgium and the United Kingdom.</p>
External Investment Managers	Not available

Source: *Arbejdsmarkedets Tillægspension (2017)*, <http://www.atp.dk/en>, <https://www.atp-ejendomme.dk/> and <https://www.atp-realestate.dk/>

The direct investments are mainly in Denmark, while the indirect investments are joint ventures and unlisted property funds in Denmark, Germany, Netherlands, Luxembourg and the United Kingdom. ATP prefers to have 100% ownership of its property investments. In their joint ventures and other unlisted property funds, ATP has a majority or at least equal ownership. The five largest property investments for ATP at the end of 2017 are listed in the table below. While ATP does not own 100% of the highest valued property, which is a portfolio of 16 Danish shopping centres, its value is more than double that of the second highest valued property.

Largest property investments - % ownership:

1. 16 Danish shopping centres (50%) – Retail
2. North Galaxy, Brussels, Belgium (100%) – Office
3. Nesa Alle 1, Gentofte, Denmark (100%) – Office
4. Stranggade 3, Copenhagen K, Denmark (100%) – Office
5. Waterfront, Bremen, Germany (100%) – Retail

ATP's direct property investments are primarily in core office and core retail in the major Danish city areas of Greater Copenhagen and Storaarhus. Consequently, the directly owned property component of the property portfolio is not very globally diversified and only slightly diversified by property type. The indirect property component is more diversified with joint ventures and unlisted property funds that invest in core, value-added and opportunistic property. Of the 31 unlisted property funds, eight are domiciled overseas. Four invest in property in the Netherlands, two in the United Kingdom, one in Luxembourg and one in Germany.



Sweden has a three tier pension scheme that is made up of a national retirement pension, a compulsory occupational pension, and voluntary pension. Compulsory occupational pensions and voluntary pensions are defined benefit pensions and managed by independent funds management. Alecta is one of these and was established in 1917⁹⁵. It was originally called Sveriges Privatanställdas Pensionskassa, SPP, but changed its name to Alecta in 2001. It is the 34th largest pension fund globally and the largest pension fund in Sweden.

Table 4.19 Profile of Alecta

Alecta (Sweden)	
Established	1917
Type	Occupational
Contributors	White collar employees
# pension fund domestically	#1
# pension fund globally	#34
Administrator	Alecta Investment Management
Assets under management ⁹⁶	830 billion SEK or 101 billion USD.
Asset allocations at 31 st December 2017	<ul style="list-style-type: none"> a. Property (7.8%) b. Equity (41.6%) c. Fixed Income (50.6%)

Source: Alecta (2017)

As at 31st December 2017, Alecta's AUM was 830 billion Swedish krona (101 billion USD) with 7.8% being allocated to property. This is similar to the allocations in previous years, but roughly 2% below its strategic target allocation of 10%. Alecta does not use any external investment managers to invest in property. All their property investment decisions are made in-house.

Alecta mainly invests in office, with office accounting for 40% of the portfolio and retail and residential accounting for 22.4% and 18.3%, respectively. Since 2014, Alecta has substantially increased its level of investment in residential by 12.3% and decreased office and retail by 13% and 8.6%, respectively. Their investment strategy is to hold a sustainable diversified property portfolio by investing in domestic and overseas property. Up until 2016, Alecta invested in direct property overseas. However, over 2016 and 2017, they sold all their 48 overseas direct property investments. They now only invest in overseas properties through unlisted property funds and listed property. Currently, these are property funds investing in

⁹⁵ The statistics and information on this pension fund are as at 31st December 2017. They are taken from Alecta (2017) and Alecta's website <http://www.alecta.se>.

⁹⁶ The USD equivalent was calculated using the daily mid-point exchange rate of one Swedish krona being the equivalent of 0.122217 United States dollars on 31st December 2017 as quoted on www.ofx.com/en-au/forex-news/historical-exchange-rates/.

Nordic countries, European countries, the United Kingdom and the United States. Its investments in Sweden are in both direct property and indirect property.

Table 4.20 Strategy, Composition and External Managers: Alecta

Target range for property	10%
Composition of property portfolio	<p><i>Property vehicle:</i> Direct property (Sweden) and Indirect property (Sweden, United Kingdom, United States, Nordic and European countries).</p> <p><i>Property Type</i> – Office (39.2%), retail (22.4%), residential (18.3%), industrial (13.3%) and other (6.8%)⁹⁷.</p> <p><i>Location</i> – Sweden (71.8%), United Kingdom (16.5%), United States (9%) and Other (2.7%).</p>
External Investment Managers	None

Source: Alecta (2017) and <http://www.alecta.se>

Alecta is the one of the largest owners of property in Sweden. Prior to 2017, Alecta’s property holdings were fairly evenly split between domestic and overseas property. However, due to the sale of its overseas direct property investments, 72% of their property investments are now in Sweden. The amount of property investments overseas is only 28% of the property portfolio, with most of this being in the United Kingdom (16.5%) followed by the United States (9%).

⁹⁷ Other includes public-sector properties (3.4%) and hotel (2.9%).

4.3 Summary of the Case Studies

These descriptive case studies are on ten overseas pension funds that are substantially larger than eight of the ten Australian superannuation schemes covered in Chapter 3. Some differences and similarities can be identified. Firstly, the range of current asset allocations to property by the overseas pension funds is wider than for the Australian superannuation schemes. Secondly, like the Australian superannuation schemes, the current property allocations for the overseas pension funds are close to what they had been in previous years. Thirdly, there are considerable differences in the level of funds that the overseas pension funds and Australian superannuation schemes invest in domestic and overseas property. Domestic property dominates the property portfolios of the Australian superannuation schemes, while domestic property is not so dominant in the overseas pension fund's property portfolios mainly. Fourthly, considerable differences also exist in their holdings of direct property and indirect property. The overseas pension funds mainly invested in direct property, while the Australian superannuation schemes mainly invested in indirect property. Fifthly, both the overseas pension funds and Australian superannuation schemes predominantly invest in core office or core retail. Lastly, regardless of their size, the overseas pension funds used either in-house management, external investment managers or a combination. This is inconsistent with the finding on the Australian superannuation schemes. The smaller Australian superannuation schemes were found to only use external investment managers. The larger ones used a combination of internal management and external investment managers.

The portfolio allocations to property by the ten overseas pension funds range from 2.6% to 16.4%, with an average allocation of 9%. This is wider than the 6.2% to 13.5% range for the Australian superannuation schemes. Denmark's ATP's allocation to property was the highest at 16.4%. The two largest pension funds, Norway's GPF (2.6%) and South Korea's NPS (3.1%), allocate considerably less than the other overseas pension funds to property. GPF is similar to Australia's largest superannuation fund, the Future Fund. They are sovereign wealth funds that do not currently require contributions. However, the Future Fund's asset allocation to property is 6.2%, so it is 3.6% higher than GPF's allocation. The current allocations by GPF and NPS are noticeably smaller than their strategic target allocations of 7% for GPF and around 10% for NPS. For the remaining overseas pension funds, that provide information on their strategic target allocations, their current property allocations are close to their strategic target allocations. This is consistent with the current property allocations of the Australian superannuation schemes reflecting their strategic target allocations. The only change in strategic target allocation over the last few years, by any of the pension funds, was by GPF. In 2017, GPF increased its strategic upper limit on property allocation from 5% to 7%.

One of the overseas pension funds only invest in overseas property, one only invests in domestic property, three mainly invest in overseas property and the remaining five mainly invest in domestic property. Norway's GPF is the largest pension fund that invests in

property. Its investment mandate requires that it only invest in overseas assets due to the substantial amount of funds that it has to invest. If GPFG invested in Norway it would monopolise Norway's financial markets and make them uncompetitive. South Africa's GEPF, is the pension fund that only invests in domestic property. In 2016, GEPF's investment mandate was changed to allow it to invest in other African countries. However, there is no plan to allow diversification outside of Africa. Three of the pension funds, the Netherland's ABP, South Korea's NPS and Canada's CPP, invest more than 70% of their funds in overseas property. The five remaining pension funds, CalPERS and CalSTRS from the United States, Canada's OTTP, Denmark's ATP and Sweden's Alecta, mainly invest in domestic property. In particular, 90% of the property portfolios of the two pension funds from the United States is invested in domestic property. This could partly be because the property market in the United States is very large, allowing diversified domestic property portfolios to be created. For CalPERS, their investment strategy requires that they mainly invest in the United States, predominantly in California to support the domestic economy. In Chapter 3, nine of the ten Australian superannuation schemes were found to mainly invest in Australia. This common finding could be because the smaller size of the Australian superannuation schemes, relative to the overseas pension funds, means they do not have a sufficient level of funds to invest in overseas property. The tenth superannuation scheme, the Future Fund, is the largest Australian superannuation scheme. As it is a sovereign wealth fund that is not required currently to pay benefits to retired Australians, it has a sufficient level of funds to invest in overseas direct property.

While all ten of the property funds invest in direct property, two of them, South Korea's NPS and South Africa's GEPF, only invest in direct property. Three of the pension funds, Canada's CPP and OTTP and Denmark's ATP, invest in direct property domestically, but invest in overseas property through joint ventures. In the joint ventures, they maintain a controlling share. Norway's GPFG and CalSTRS from the United States also invest in overseas property through joint ventures. However, GPFG also invests in overseas listed property, while CalSTRS invests in overseas unlisted property funds. The Netherland's ABP and Sweden's Alecta prefer to invest overseas through unlisted property funds and listed property. Over the last few years, they have both replaced their overseas direct property investments with overseas unlisted property funds and listed property. ABP maintains that this is a more flexible way to invest in the global property market. The tenth pension fund, CalPERS from the United States, only invests 6% of its funds in overseas property. CalPERS invests in domestic property via direct property, unlisted property funds and listed property.

The investment strategies of the pension funds focus on core property. The ten pension funds mainly either invest in office or retail. Eight of them invest the majority of their funds in office and retail. Norway's GPFG and the Netherland's ABP have a greater exposure to industrial or residential than either retail or office. GPFG invests close to 60% of their property portfolio in office, but slightly more in industrial than retail. ABP's highest exposure is to retail followed by residential, industrial and a smaller exposure to office. The Australian

superannuation schemes invest mainly in both core office and retail. Their investments in industrial and residential are small.

Two of the pension funds, Sweden's Alecta's and South Africa's GEPF, only use internal investment management. Alecta is the smallest of the overseas pension funds and GEPF is the third smallest. The two largest overseas pension funds, Norway's GPFG and South Korea's NPS, only use external investment managers. This is in contrast to the Australian superannuation schemes, where the smaller schemes used external investment managers and the larger schemes used both internal investment managers and external investment managers. This finding may be because, while Alecta and GEPF are the smallest of the overseas pension funds, they are still relatively larger than the majority of Australian superannuation schemes. Consequently, they can afford to manage their property investments in-house. Three of the other overseas pension funds, CalPERS and CalSTRS from the United States and Canada's CPP, only use external investment managers. Another three, the Netherland's ABP, Canada's OTTP and Denmark's ATP, use a combination of in-house management and external investment managers to invest in property. ABP employs external investment managers for both their domestic and international property investments, while OTTP and ATP use external investment managers for their overseas joint ventures.

The property exposure and property allocation strategies adopted by a sample of Australian superannuation schemes and overseas pension funds are summarised by the case studies in Chapters 3 and 4. They provide a valuable background and context to identifying factors that can influence property investment decision-making; particularly in terms of their AUM and percentage allocation to property in their overall portfolio. The following chapter reviews surveys undertaken on decision-making by institutional investors when investing in property and multi-criteria models that can be used to analyse this decision-making.

CHAPTER 5

LITERATURE REVIEW

Chapter 5 reviews academic surveys analysing the property investment decision-making by institutional investors and multi-criteria decision-making (MCDM) models that can be used for this type of survey. The chapter provides a theoretical background to the research that is undertaken in this thesis.

5.1 Introduction

The second largest pension fund in the world, Norway's Government Pension Fund, states on its webpages that:

"The fund is invested in high-quality properties that can deliver a good return over time. We invest in office and retail properties in selected cities around the world, and in logistics properties that are part of global distributions networks"⁹⁸.

In order to do this, a pension fund needs to make strategic decisions on a wide range of factors. For property, the majority of these factors are qualitative rather than quantitative. Surveys have been used in academic research on property investment decision-making by institutional investors, to gather information on these factors. This chapter will review surveys in this research area and summarise their findings. The summary puts emphasis on the importance the survey respondents place on the alternative factors that they are surveyed on. It also compares the findings of each survey to identify if changes have occurred in decision-making between the time periods the surveys were undertaken.

The strengths and weaknesses of the survey models and delivery mode, mail and face-to-face, used for the surveys are discussed. Multi-criteria decision-making (MCDM) models are recognised as being superior to the models used in these surveys, when analysing decision-making between alternative factors. The chapter finishes with a review of four main MCDM models that can be used to construct the survey questionnaire and explains how the chosen MCDM is the most appropriate one to use in this thesis.

5.2 Surveys on Institutional Investment in Property

Survey analysis of property investment decision-making by institutional investors did not begin until the early 1970s. The first survey was undertaken by Wiley (1976) in 1972 on institutional investors from the United States and Canada.

⁹⁸ The weblink is <https://www.nbim.no/en/investments/real-estate-management/>.

Wiley (1976, p. 586) argued that investors would use particular methods and techniques when making decisions on whether or not to invest in property. Consequently, when professionals appraise the economic value of properties they should take into consideration the behaviour of property investors. The next survey undertaken in the early 1980s was by Farragher (1982) followed by Page (1983), Webb (1984) and Webb and Macintosh (1986). Most of the questions in these surveys are similar to those in Wiley (1976) and their respondents are institutional investors from the United States. Surveys after the 1980s in the United States have only included a few of Wiley's (1976) questions. Louargand (1992) and Worzala and Bajtelsmit (1997) added questions on modern portfolio theory (MPT), while Farragher and Kleiman (1996) and Farragher and Savage (2008) asked questions on the entire investment decision-making process from start to finish. De Witt (1996) surveyed institutional investors in the Netherlands in the 1990s using questions similar to Wiley (1976). Property investment decision-making by Australian institutions was first surveyed by Newell, Stevenson and Rowland (1993), just after compulsory superannuation was introduced in the late 1980s in Australia. While Newell et al. (1993) did ask questions on decision-making areas covered in the overseas surveys, they asked them in a different way. Boyd, MacGillivray and Schwartz (1995) also surveyed Australian institutional investors during the same period as Newell, et al. (1993). However, their survey questions were based on those in Wiley (1976) along with some additional questions. Three other Australian surveys have been undertaken on decision-making by Australian institutional investors. Rowland and Kish's (2000) survey is similar to the earlier overseas surveys, except it asked questions on investments in direct property and indirect property. The last two surveys are by Newell (2008) and Reddy (2012). They were conducted around the time of the global financial crisis (GFC) and, like Rowland and Kish (2000), included questions on exposure to direct property and indirect property.

All the surveys, other than De Witt (1996), sent mail surveys to their respondents. De Witt (1996) surveyed using face-to-face interviews. It is difficult to directly compare the responses across the surveys as they often phrased their questions in different ways and did not survey the same type of institutional investors. The majority of questions were either multiple choice or a list of alternatives that respondents could choose between. Some surveys allowed their respondents to choose several alternatives and not just one. In others, respondents were asked to rank the alternatives in terms of their degree of importance using a number or by selecting one of the labels provided. For example, some of the questions in Rowland and Kish (2000) asked the respondents to indicate whether the alternative was "irrelevant", "minor", "major", "dominant", or "don't know".

A review of the overseas surveys undertaken in the 1970s and 1980s will now be carried out followed by a review of the overseas surveys undertaken after the 1980s. The chapter will finish with a review of the Australian surveys and a summary of the findings in the surveys.

5.2.1 Overseas Surveys Undertaken in the 1970s and 1980s

Wiley's (1976) survey was undertaken during the 1970s when real housing prices rose rapidly following the trough experienced in 1966 (Case, 1994, p.30). The mail survey was sent to insurance companies, property funds and real estate investment trusts (REITs) from the United States and Canada⁹⁹. The response rate was 40% by the institutions that did invest in property. Eight of the ten largest life insurance companies and most of the major REITs in the United States and Canada responded to the survey (Wiley, 1976, p.587). Wiley (1976) groups the respondents into small, medium and large institutional investors, according to the market value of their portfolios. However, Wiley (1976) only reported on the sub-group, that is the insurance companies, property funds and REITs, responses to some of the questions.

Wiley's (1976) survey asked questions on five factors that decisions are made on when investing in property; property type, return analysis, planned holding period, risk analysis and computer usage. For the first factor, the most preferred property type was office buildings for the insurance companies, apartments for the REITs and motels/hotels for the property fund managers. Two questions were asked on the second factor, return analysis. One question was on their before-tax measure of return and the other on their after-tax measure of return. Some of the measures were single period and the others were discounted multi-period measures. Most of the respondents indicated they used a before-tax measure, while only just over a half used an after-tax measure. Wiley (1976, p.587) stated that this was expected as most of the responding institutional investors generally did not pay taxes so would not use an after-tax measure. The most preferred before-tax measure was a single-period cash flow measure (58%) followed by a single period net income measure (36%) and then investment yield (32%). The most used after-tax measure was also a single period cash flow measure (25%) followed by the multi-period cash flow measure internal rate of return (18%), tax-shelter benefits (18%) and then a single-period earnings measure (12%). Wiley (1976, p. 589) argues that the popularity of internal rate of return indicated that "sophisticated techniques" were being used by some of the respondents (Wiley, 1976, p.589). As multi-period measures of return require a holding period, the third decision-making factor Wiley (1976, p. 592) asked the respondents about was their planned holding period. 11% indicated they used 5 years, 32% used 10 years, 15% used 20 years and 42% indicated other time periods. It is not known whether the 42% would mainly be using less than 5 years or more than 20 years. The responses to the fourth factor, risk analysis, revealed that 79% of the respondents used risk analysis when investing in property (Wiley 1976, p. 590). The most used techniques were fairly basic risk adjustment techniques of adjusting a projects expected benefits downwards or adjusting an investments required return upwards. More advanced techniques, such as probability distributions and sensitivity analysis, were not used as much. The use of risk analysis by the smaller institutions was limited. When the survey was undertaken in 1972, the use of computers for analysis of property investments was not widespread. The responses to the last decision-making factor, computer usage, supports this as only 27% of the respondents indicated that they used computers in their analysis. 43% of these were

⁹⁹ Property fund managers are referred to as real estate corporations in Wiley (1976).

the larger institutions and 14% the smaller institutions. The respondents' use of computers was mainly to calculate rates of return (23%), forecasting (11%) and simulations (9%). Wiley (1976, p. 591) argues that in the future, investors would be increasing their use of computers for analysis, which will lead to these advanced techniques being used more often.

It was not until a decade later that institutional investors were again surveyed about decision-making when investing in property. Property had now become an accepted "alternative" asset class by pension funds and was considered to be an attractive asset to include in portfolios, as it is a hedge against inflation and has low or negative correlation with other financial assets (Ibbotson and Siegal (1984) and Hartzell, Hechman and Miles (1987)). Over the decade, property values had continued to rise rapidly and several significant economic and financial environment changes occurred. These were deregulation of financial markets, a significant increase in inflation, increased computer usage and the introduction of new legislation to alleviate the tax burden of investments (Webb, 1984, pp. 496-497). Four surveys of property-investment decision-making by institutional investors from the United States were undertaken in the early to mid-1980s by Farragher (1982), Page (1983), Webb (1984) and Webb and McIntosh (1986). They were all mail surveys with response rates of less than 50%. The response rates being 38%, 33%, 18%, and 45.9% for Farragher (1982), Page (1983), Webb (1984) and Webb and McIntosh (1986), respectively.

Page (1983), Webb (1984) and Webb and Macintosh (1986) base most of their survey questions on the questions included in Wiley (1976) and ask about the decision-making factors; property type, return analysis, risk analysis and computer usage. They also include additional questions to account for decision-making areas not covered by Wiley (1976). Page's (1983) survey of property funds, REITs and insurance companies included questions on the use of ratio analysis and the impact of the new tax legislation, the Economic Recovery Tax Act of 1981 (ERTA). Webb (1984) and Webb and McIntosh (1986) are identical surveys that include a question on holding period and diversification strategy¹⁰⁰. Webb (1984) mailed their survey to insurance companies and pension funds, while Webb and McIntosh (1986) mailed theirs to REITs. Farragher (1982), on the other hand, included questions on only two of the decision-making factors in Wiley (1976), return analysis and risk analysis. Their additional question was on whether the respondents reviewed the performance of their property investments. Farragher (1982) surveyed property funds, property syndicates, insurance companies, REITs and pension fund advisors.

For the factor, property type, Page (1983), Webb (1984) and Webb and Macintosh (1986) found that insurance companies and pension funds preferred to invest in office, while REITs now preferred to invest in retail, rather than residential as found by Wiley (1976), and property funds preferred to invest in land rather than motels/hotels. All four surveys asked a question on return analysis, but included a

¹⁰⁰ Questions were also included on the respondents' equity position in property and mortgage position. However, as mortgages are fixed interest assets the responses to these questions are not analysed.

wider range of return measures than Wiley (1976). A comparison of the findings from the four surveys show that between the 1970s and 1980s, single period cash flow measures and single period earnings measures became more popular than single period net income measures; the usage of the multi-period cash flow measure internal rate of return increased significantly; and there was a greater use of after-tax return measures. Page (1983, p. 501) argued that the growing attractiveness of using internal rate of return could be due to investors becoming more concerned about the time value of money following the rapid rise in inflation since the mid-1970s. Only two of the four surveys, Webb (1984) and Webb and McIntosh (1986), asked a question about the holding period used when calculating discounted cash flows. They found the preferred holding period to be between five and ten years, followed equally by holding periods between eleven and 15 years and up to five years. The four surveys found that the most used risk analysis, like Wiley (1976), were the very basic techniques of adjusting required returns upward and adjusting expected benefits downward. Of the more sophisticated techniques, the respondents slightly preferred sensitivity analysis to probability analysis. Page (1983) also analysed the use of risk analysis based on the market value of the respondent's portfolio and found that just over a half of the smaller institutional respondents used some form of risk analysis. This is in contrast to Wiley's (1976) finding a decade earlier that the use by smaller institutional respondents of risk analysis was very limited.

The growing popularity of internal rate of return and sensitivity analysis over the decade could be due to the higher usage of computers. Their more complex calculations can be easily undertaken on computers. 73% of the respondents to Wiley's (1976) indicated they did not use computers, while only 43%, 50%, and 62% of the respondents to Page (1983), Webb (1984) and Webb and McIntosh (1986) respectively did not use computers. These three surveys found that, like Wiley (1976), computers were mainly used to compute rates of return.

Page (1983) asked their respondents about their use of ratio analysis and the impact of the ERTA on their level of property investment. Ratio analysis is used extensively by investors when investing in the equity market and fixed income market. The responses to Page (1983) by 70% of their respondents indicated leverage and profitability ratios were used when making decisions on property investment. This finding suggests property investors are concerned about the overall profitability of their investment, as well as the level of debt used to finance their investment (Page 1983, p. 502). In 1981, the ERTA was introduced in the United States and reduced the tax paid on income from property investments (Page 1983, p. 505). To evaluate the impact of the ERTA, Page (1983) asked their respondents whether or not the ERTA had changed the holding period they used for investment analysis and their level of investment in property. Most of the respondents indicated that it did not cause them to change either of these.

Webb (1984) and Webb and McIntosh (1986) included a question on diversification of the property portfolio. 38% of the respondents to Webb (1984) indicated that they did not diversify, while 30% of the respondents to Webb and McIntosh (1986) did not diversify. The respondents that did diversify, used

geographical location closely followed by property type as their diversification strategy.

The respondents to Farragher (1982) were asked about whether they reviewed the performance of their property investments. The majority, 87%, indicated that they did. However, only just over a half did this review annually and 13% never reviewed. Table 5.1 summarises the general findings across the overseas surveys undertaken in the 1970s and 1980s.

Table 5.1 – Overseas Surveys on Decision-making Factors in the 1970 and 1980s

Factor	General Finding
Property Type	Insurance companies and pension funds mainly invested in office, REITs in retail and property funds in land
<i>Return Analysis</i>	<i>Mainly used single-period cash flow measures but increased use of internal rate of return</i>
Holding Period	Most preferred was 5 to 10 years
<i>Risk Analysis</i>	<i>Basic techniques of adjusting returns and benefits preferred but increased use of sensitivity analysis. Less than 50% of respondents adjust returns for risk</i>
Computer Usage	Increased use over the period and mainly used to calculate rates of return
<i>Ratio Analysis</i>	<i>Leverage and Profitability Ratios preferred.</i>
Impact of ERTA	Negligible impact on decision-making
<i>Diversification Strategy</i>	<i>Property type and geographical location</i>
Review of Performance	Undertaken by the majority of respondents

5.2.2 Overseas Surveys Undertaken after the 1980s

Most of the overseas surveys in the 1990s onwards included questions on a wider range of areas than Wiley (1976). Louargand (1992) and Worzala and Bajtelsmit (1997) include questions on MPT. Louargand's (1992) survey asked questions on the following factors; return analysis, risk analysis, portfolio diversification, performance goals and benchmark indices. The questions in Worzala and Bajtelsmit (1997) were on the factors; property type, portfolio diversification, diversification strategy, asset allocation and use of external parties. Louargand (1992) included MPT alternatives in their question on risk analysis, while Worzala and Bajtelsmit (1997) included MPT as an alternative in a question on asset allocation. Louargand (1992) surveyed United States pension funds and asset advisors, while Worzala and Bajtelsmit (1997) surveyed United States defined benefit pension funds. Farragher and Kleiman (1996) and Farragher and Savage (2008) are different from the other surveys in that they ask questions on the entire investment decision-making process from start to finish and not only parts of this process. Farragher and Savage (2008) survey is an update of Farragher and Kleiman (1996) survey, so the survey questions are very similar. This allows a comparison to be made over a ten year period and any changes in property investment decision-making to be identified. The decision-making factors that they ask questions on are strategic analysis, return analysis, holding period, risk analysis and review of property

investments. Farragher and Savage (2008) also included a question on diversification strategies. Farragher and Kleiman (1996) surveyed REITs, pension funds, insurance companies and private investment companies from the United States. Farragher and Savage (2008) surveyed REITs, pension funds, life insurance companies and private investment and development companies from the United States. De Witt (1996) surveys insurance companies and pension funds from the Netherlands and, unlike the other surveys, it is not a mail survey, but involved face-to-face interviews. The questions asked are similar to the questions in earlier surveys. The factors covered in De Witt (1996) are return analysis, risk analysis, portfolio diversification, performance goals and benchmark indices.

The response rates to the four mail surveys were low, with Louargand (1992), Farragher and Kleiman (1996), Worzala and Bajtelsmit (1997) and Farragher and Savage (2008), having response rates of 29%, 32%, 24% and 23% respectively. They also only surveyed larger institutional investors. Louargand (1992, p.364) concedes that this could lead to sample bias, as the results may not reflect decision-making by smaller institutions. De Witt's (1996) face-to-face interview survey received a substantially higher response rate, at 88%, than the mail surveys. Higher response rates is one benefit of doing a face-to-face survey instead of a mail survey. Face-to-face interviews also generate more reliable responses as the interviewer can explain the questions to the respondents. Consequently, the questions are less likely to be misinterpreted or misunderstood by the respondents. De Witt (1996, p. 133) stated that there is smaller number of institutional investors and shorter travel time between cities in the Netherlands compared to the United States. The short distance between cities in Netherlands means the benefits of face-to-face interviews easily exceeded the cost involved in administering them. The average time for the interviews was ninety minutes. However, it can be argued that bias can arise in face-to-face interviews, as the interviewer's approach to asking the questions could influence how the questions are answered. De Witt (1996, p. 133) acknowledged this problem and in the interviews only asked the questions as they were written on the questionnaire. At the time of the survey, yearend-data showed that institutional investors in the United States allocated roughly 4% of their portfolio to property investment, while institutional investors in the Netherlands allocated more than 10% (De Witt 1996, p. 134).

Louargand (1992, p.361) saw the need to include MPT as a factor influencing decision-making on property investments, as MPT has been used for investment decisions on equity and fixed income. Louargand (1992, p. 362) argued that larger pension funds had sufficient funds to invest in a diverse property portfolio, while smaller pension funds did not. This is due to the unique characteristics of the property market, "lack of divisibility; illiquidity; transactions, search and agency costs", being barriers to entry for the smaller pension funds. Louargand (1992, p. 363) contends that the larger pension funds will benefit from making decisions using mean/variance analysis and correlation according to MPT. Worzala and Bajtelsmit (1997) also included a MPT question. However, they acknowledged that it can be difficult to apply MPT to property investments. The unique characteristics of the property market mean that appraisal based data rather than actual data is normally

used to estimate return, risk and correlation between property investments. (Worzala and Bajtelsmit 1997, p. 48)

Farragher and Kleiman (1996) and Farragher and Savage (2008) re-examined the quantitative areas surveyed in the 1970s and 1980s. While they acknowledged that these early surveys provided useful findings on decision-making by institutional investors, they criticised them for only looking at parts of the decision-making process, in particular return analysis and risk analysis, and not the entire process from start to finish. The first stage of the process begins when the investor strategically analyses how they can get the optimal use out of their “resources and competencies” (Farragher and Kleiman 1996, pp. 32-33). The investor then decides on investment projects to undertake, subject to the minimum required rate of return and the maximum level of risk they are prepared to accept. The final stages in the process are the implementation of the investment decisions and reviewing the investment’s performance. The decision-making factors that Farragher and Kleiman (1996) and Farragher and Savage (2008) ask questions about in the first stage are strategic analysis; in the second stage, return analysis, holding period and risk analysis; and in the final stage, performance review. The institutional respondents to both surveys rated the setting of strategies and establishing return and risk objectives in the first stage as the most important decisions in the process. The last stage, where investment performance is reviewed, was the least important stage.

The only survey not to include a question on return analysis or risk analysis was Worzala and Bajtelsmit (1997). Across the other surveys, the responses to the question on return measure were not consistent. The majority of respondents to Louargard (1992), Farragher and Kleiman (1996) and Farragher and Savage (2008) preferred to measure return using the internal rate of return and net present value. However, the Dutch interviewees to De Witt (1996) preferred single period measures to discounted cash flow measures. Although of the discounted cash flow measures, they preferred using internal rate of return over net present value. The interviewees told De Witt (1996, p. 140) that they often used the interest rate in the fixed interest market as a benchmark for their cash flow measures and internal rate of return measures. Louargard (1992, p. 367) argues that the decreasing popularity of the single-period return measures in the United States is consistent with capital budgeting alternatives to these accounting approaches being studied in tertiary courses.

Farragher and Kleiman (1996) and Farragher and Savage (2008) also asked their respondents questions on their use of before-tax and after-tax measures and how they forecast expected returns. The majority of respondents to both surveys indicated that they mainly used before-tax measures rather than after-tax measures. This reflects the tax free legislation most of the respondents operated under. When forecasting expected returns, nearly all the respondents to both surveys stated they forecasted their annual operating returns, rather than refinancing and resale returns. Although Farragher and Savage (2008) reported an increase in the use of forecasted refinancing and resale returns in the ten years since Farragher and Kleiman’s (1996) survey. Farragher and Kleiman (1996) found that the average time frame their respondents forecasted expected returns over was 6.7 years. Ten years later, the

respondents to Farragher and Savage's (2008) survey had an average standard time period of 7.5 years. The average standard time period in both surveys is fairly consistent with the five to ten year preferred holding period by respondents in earlier surveys.

Louargand's (1982), De Witt's (1996), Farragher and Kleiman's (1996) and Farragher and Savage's (2008) questions on risk analysis allowed their respondents to choose from a list of alternative risk measures. Louargand (1982) included two quantitative risk measures from MPT, mean/variance and beta coefficients. However, very few of their respondents indicated that they used either of these MPT measures. Their most used technique was sensitivity analysis closely followed by upward adjustment of required return. A major difference between this finding and that of the earlier surveys is that sensitivity analysis had become substantially more popular as a tool for risk analysis. One reason for the popularity of sensitivity analysis could be the development of computer spread sheet modelling which allowed its computation to be quickly undertaken (Louargand 1992, p. 366). The respondents to Farragher and Kleiman (1996) and Farragher and Savage (2008) also indicated that sensitivity analysis was the most popular risk assessment technique. However, the Dutch respondents to De Witt's (1996) survey mainly used the less sophisticated techniques of increasing the required rate of return or decreasing the expected cash flows. Louargand (1992) and De Witt (1996) found that, like the earlier surveys, not all their respondents adjusted for risk. In fact, only 30% of De Witt's (1996) respondents indicated that they 'consciously and rigorously' adjusted their property returns for risk. Although most of the respondents to De Wit (1996) indicated that they were aware of the riskiness of investing in property. They were also more likely to qualitatively rather than quantitatively adjust for risk (De Wit 1996, p. 142).

Farragher and Kleiman (1996) and Farragher and Savage (2008) also asked their respondents questions on the usage of qualitative and quantitative risk assessment. In the ten years between Farragher and Savage (2008) and Farragher and Kleiman (1996), there had been a significant decrease in the use of qualitative risk assessment. Only 45% of Farragher and Savage's (2008) respondents undertook qualitative risk assessment compared to the 70% in Farragher and Kleiman (1996). In contrast, the percentage of respondents undertaking quantitative risk assessment had increased over the ten years. However, both surveys found that when return forecasts or the minimum required rate of return is adjusted for risk, it is mainly done subjectively rather than using calculated numerical measures of risk.

The coverage of risk analysis by Farragher and Kleiman (1996) and Farragher and Savage (2008) was also in relation to the strategic plan set in the first stage of the investment process. 83% of the respondents to Farragher and Kleiman (1996, p. 33) and 84% of the respondents to Farragher and Savage (2008, p. 33) indicated that it is essential to establish a strategy when deciding on the most appropriate investment to undertake. Once this has been established, investors should set their minimum required return and maximum acceptable risk goals. The majority of respondents (83%) to Farragher and Kleiman (1996) had a minimum required return goal, but only around two thirds (64%) had a maximum acceptable risk goal. Ten years later, the majority of respondents (79%) to Farragher and Savage (2008) also set a minimum required return goal. However, a significantly smaller percentage

(44%) set a maximum acceptable risk goal. It is disturbing that the survey taken ten years later shows a decrease, rather than an increase, in how important investors regard setting an acceptable goal for their exposure to risk. Risk is an essential criterion that should be taken into account when making any investment decision (Farragher and Kleiman 1996, p. 33).

Farragher and Kleiman (1996) was the only survey that did not include a question on diversification. The other surveys asked their respondents if they diversified their property investments and/or to identify the diversification strategy that they used. Louargard (1992), De Witt (1996) and Farragher and Savage (2008) asked their respondents whether or not they used diversification strategies when investing in property. Only 8% of the respondents to Louargard (1992) indicated that they did not use diversification strategies. This is considerably less than the 30% of De Witt's (1996) and 19% of Farragher and Savage's (2008, p. 33) respondents, respectively, that did not use diversification strategies. Though they are all lower proportions than those in the earlier United States surveys by Webb (1984) and Webb and McIntosh (1986), who found 38% and 30%, respectively, of their respondents did not diversify. This implies that by the 1990s, institutional investors had begun to consider diversification to be more relevant to their decision-making. However, the proportion of Dutch respondents to De Witt's (1996) survey that did not diversify is close to what was found in the earlier studies. Louargard (1992), De Witt (1996), Worzala and Bajtelsmit (1997) and Farragher and Savage (2008) asked their respondents about their preferred diversification strategy. Their respondents mainly diversified their property portfolio by investing in different property types and different locations. The term location in the United States surveys only referred to region, while in De Witt (1996), it referred to country. De Witt (1996, p. 131) commented that at the time of their survey, Dutch investors were very active investors in overseas properties located in the United States, while investors from the United States tended to only invest in domestic property. Worzala and Bajtelsmit (1997) was the only survey that included a question asking the respondents what property type they invested in. Their respondents indicated that they mainly invested in retail and office. This finding is consistent with the findings of the earlier surveys.

Louargard (1992) and De Witt (1996) included questions on performance goals and benchmarks. The most important performance goal in Louargard (1992) was total expected return, while in De Witt (1996) it was hedging for inflation. In Louargard (1992), inflation hedging was regarded as an unimportant goal. The responses to the benchmark question in Louargard (1992) indicated that property indices were the preferred performance benchmarks. While stock market indices were not popular benchmarks, the respondents were not unanimous about their views on the relationship between property returns and equity returns. One third of Louargard's (1992) respondents considered there was negative correlation, one third mild correlation and one third no correlation. In terms of riskiness, 88% of the respondents considered property to be more volatile than equity (Louargard 1992, p. 369). Most of the respondents to De Witt (1996) did not measure the performance of their property portfolio against any benchmark. This may be because no Dutch property index existed at the time of the survey.

Worzala and Bajtelsmit (1997) was the first survey to include specific questions on asset allocation and the use of external investment managers and asset consultants¹⁰¹. They found that on average, respondents invested 6.4% of their portfolio in property. This is higher than the 4.37% average allocation by the larger pension funds in an earlier statistical data study by Bajtelsmit and Worzala (1995). Most of the respondents to Worzala and Bajtelsmit (1997) made allocation decisions using experience/intuition, followed by correlation and then mean/variance analysis. Over half of the respondents indicated that their decisions on allocation across different asset classes and the allocation within each asset class were independent. Bajtelsmit and Worzala (1997, p. 53) argue that this independence could cause unanticipated risk, as different information would be used when deciding on what property to invest in and how much of the total portfolio will be invested in property. Previous research had found that returns on REITs had a performance pattern similar to that of common stocks rather than direct property (Worzala and Bajtelsmit 1997, p. 54). Consequently, Worzala and Bajtelsmit (1997) asked the respondents whether they thought REITs should be regarded as property or fixed income. Half the respondents felt that REITs should be included in their property portfolio, while the other half included REITs in their equity portfolio.

The use of external investment managers and asset consultants was covered in Worzala and Bajtelsmit (1997) by asking the respondents to indicate their level of internal decision-making on property investments. Close to half of the respondents indicated they made in-house decisions on asset allocations, with 22% indicating that all property investment decisions were made in-house. A greater proportion of the smaller and medium sized pension funds in the sample outsourced the decision-making than the larger pension funds¹⁰².

The final step in the investment decision-making process is to review the investment's performance. An earlier survey by Farragher (1982) found that institutional investors do review the performance of their property investments. The review plays two roles. Firstly, it makes the decision-makers accountable for the reliability of the forecasts they use when deciding to go ahead with the investment. Secondly, it recognises when corrective actions need to be undertaken to maximise the investment's success (Farragher and Kleiman 1996, p. 39). Both Farragher and Kleiman (1996) and Farragher and Savage (2008) found that not all their respondents reviewed the performance of their property investments. Farragher and Kleiman (1996) found that only 61% of their respondents reviewed their property investments and ten years later, Farragher and Savage (2008) found an even smaller number, 55%, of their respondents undertook a review. Farragher and Savage (2008) asked their respondents about how often the review was conducted. Annual reviews were only undertaken by 45% of the respondents. Table 5.2 summarises the general findings across the overseas surveys undertaken since the 1980s.

¹⁰¹ Worzala and Bajtelsmit (1997) refer to external investment managers as outside management firms.

¹⁰² Large pension funds were those with a portfolio of \$5 billion or greater, while medium and small pension funds held between \$1 billion and \$5 billion and less than \$1 billion respectively.

Table 5.2 – Overseas Surveys on Decision-making Factors since the 1980s

Factor	General Finding
Property Type	Office and Retail
<i>Return Analysis</i>	<i>Mainly used internal rate of return in the United States and single period measures in the Netherlands</i>
Forecasting period	Most preferred was 5 to 10 years
<i>Risk Analysis</i>	<i>Mainly use sensitivity analysis but less than 50% of respondents adjust returns for risk. Quantitative risk assessment used more than qualitative risk assessment</i>
Diversification Strategy	Property type and geographical location
<i>Performance goal</i>	<i>Total expected return and inflation hedge</i>
Benchmark Indices	Property indices are preferred
<i>Asset allocation</i>	<i>Experience/intuitive most used technique</i>
External managers/advisors	Used by smaller institutional investors but limited use by large institutional investors
<i>Review of Performance</i>	<i>Undertaken by just over 50% of respondents</i>

5.2.3 Australian Surveys on Property Investment Decision-Making

Five surveys have been undertaken on decision-making in property investment by Australian institutional investors. The first survey was carried out by Newell, Stevenson and Rowland (1993) in 1991. Previous Australian surveys on property investment had focused on asking questions about future investment strategies or policies undertaken by institutional investors (Newell et al., 1993, p. 450). The other four surveys are by Boyd, MacGillivray and Schwartz (1995), Rowland and Kish (2000), Newell (2008) and Reddy (2012). All five are mail surveys with responses rates of 51%, 31%, 42%, 38% and 41% for Newell et al. (1993), Boyd, et al. (1995), Rowland and Kish (2000), Newell (2008) and Reddy (2012) respectively.

Newell et al.'s (1993) survey was undertaken soon after the introduction of compulsory award-based Australian superannuation in 1986. This legislation considerably increased the amount of funds available to superannuation schemes to invest in property and other assets. In the early 1990s, property investors had to contend with reduced returns, increased volatility and lower inflation levels (Newell et al. 1993, p. 453). In this climate, some institutional investors might be seen as being currently overexposed to property (Newell et al., 1993, p. 450). The objectives of Newell et al.'s (1993) survey were to assess the importance of property in an institutional investment portfolio and to analyse the use of property characteristics when investing in property. Newell et al. (1993) mainly surveyed property funds, insurance companies and superannuation schemes. They asked them about the decision-making factors of property type, return analysis, holding period, computer usage, property diversification and property characteristics.

Boyd et al. (1995) surveyed investors during the same period as Newell et al. (1993). However, their study was similar to the earlier overseas surveys by Wiley (1976), Farragher (1982), Page (1983), Webb (1984) and Webb and McIntosh (1986). Boyd et al. (1995) saw the need to collect information on the current capital

budgeting practices being used in Australia. Particularly as the Australian property market was experiencing a major decline and several real estate corporations had recently collapsed¹⁰³. The structure of Boyd et al.'s (1995) survey was based on the United States surveys. The decision-making factors covered in the survey were return analysis, risk analysis, holding period and property characteristics. They surveyed property funds, property companies, insurance companies and superannuation schemes. Boyd et al. (1995) was the only survey to ask respondents about their employees' university qualifications in property. A third of the respondents indicated that they had employees who had studied property at an undergraduate level, but not postgraduate. At the time of Boyd et al.'s (1995) survey, property courses at university level were only just being introduced in Australia. This could make it difficult for property investors with Australian tertiary qualifications to be familiar with sophisticated investment techniques (Boyd et al., 1995, p.196).

In the years following the surveys undertaken by Newell et al. (1993) and Boyd et al., (1995), the Australian property market recovered quickly following the slump experienced in the early 1990s. Rowland and Kish (2000) surveyed superannuation schemes, listed property funds, unlisted property funds and property syndicates in the late 1990s, as property investment started to become more attractive once again. Australian institutional investors began to view listed and unlisted property funds as very attractive alternatives to buying direct property. This saw institutional investors substitute some or all of their direct property investment with units in property funds or property syndicates¹⁰⁴. Rowland and Kish (2000, p.105) argue that decision-making and pricing by property fund managers now had a dominant impact on Australian property markets. Like previous surveys, on property investment by institutional investors, they asked questions on the following factors; return analysis, risk analysis, holding period, asset allocation and property characteristics. The major difference between Rowland and Kish (2000) and the earlier surveys is that they asked questions on investments in direct property and indirect property.

It was not until nearly a decade after Rowland and Kish (2000) that institutions were again surveyed on their property investment decision-making. These surveys took place around the time of the global financial crisis (GFC). Newell (2008) surveyed superannuation schemes in 2008 during the middle of the GFC. Reddy (2012) surveyed superannuation schemes, investment managed funds, property funds and asset consultants towards the end of the GFC, in late 2010 and early 2011. During this period, the GFC was having a negative impact on the Australian share market, but little adverse impact on the property market. Like Rowland and Kish (2000), both surveys included questions on asset allocation within the portfolio to property, as well as across direct and indirect property. Newell (2008) also included questions on return analysis, benchmarks and asset consultants, while Reddy (2012) asked questions on return analysis, risk analysis, and asset consultants.

¹⁰³ Some of the Australian property companies that had collapsed were Hooker Corporation, Estate Mortgage, Tricontinental and Girvan.

¹⁰⁴ A property syndicate being a managed investment scheme with a finite life of 5 to 7 years.

The questions in the surveys on return analysis support the increased use of internal rate of return as the measure of return. The majority of respondents to Newell et al. (1993), Boyd et al. (1995) and Reddy (2012) indicated that their most preferred return measures were internal rate of return and the single-period return measure initial yield¹⁰⁵. Furthermore, Newell et al. (1993) and Boyd et al. (1995) found that the smaller institutions showed greater preference for initial yield over internal rate of return, while the larger institutions preferred internal rate of return over initial yield. Rowland and Kish (2000) differed from Newell et al. (1993), Boyd et al. (1995) and Reddy (2012) in that, while they found internal rate of return was the preferred return measure, the use of net present value was preferred over initial yield. Boyd et al. (1995, p.197) also asked their respondents to indicate the required rate of return they considered to be acceptable. Just over half of the respondents had a set required internal rate of return, while the others based their required rate of return on a current financial indicator, such as a Government bond rate. Newell (2008, p. 675) did not include a question on the respondent's measure of return. However, they asked their respondents to indicate the factors that influenced their expected required return. The most critical factors were found to be local property trends and re-pricing of property.

The responses to the questions in Newell et al. (1993), Boyd et al. (1995) and Rowland and Kish (2000) on holding period were not consistent. Newell et al.'s (1993) respondents were fairly evenly split across the three holding periods of up to five years, six to ten years, or more than ten years. In Boyd et al. (1995, p. 199), 97% of the respondents preferred a holding period of less than ten years (Boyd et al, 1995, p. 199). The respondents to Rowland and Kish (2000, p.107) indicated their preferred minimum holding period for direct property was between 5 years and 10 years, while for indirect property it was a lot shorter, being between 1 and 3 years. The preferred forecasting period was between 5 to 7 years. The overseas surveys had found on average the preferred holding period was between 5 and 10 years. Boyd et al. (1995) included a capital budgeting question and asked their respondents to indicate the discount rate they used in their discounted cash flow analysis. A before-tax opportunity cost of capital was used by 47% of the respondents while, 37% chose from a variety of rates depending on the level of risk¹⁰⁶.

Boyd et al. (1995), Rowland and Kish (2000) and Reddy (2012) found that more sophisticated measures of risk were being used by their respondents rather than basic measures, such as upward adjustments to the required rate of return. Sensitivity analysis was the preferred risk analysis by the respondents to Boyd et al. (1995). In Rowland and Kish (2000), both sensitivity analysis and scenario analysis were the preferred measures of risk. Reddy's (2012) respondents indicated that scenario analysis, followed by debt coverage ratio and then sensitivity analysis were significantly more important than other risk analysis techniques. Only Boyd et al. (1995) asked their respondents if they undertook some form of risk analysis, 90% indicated that they did.

¹⁰⁵ Initial yield is referred to as direct capitalisation in Newell, et al. (1993), Boyd, et al. (1995) and Reddy (2012).

¹⁰⁶ The other discount rate alternative that the respondents could chose were initial yield (10%), opportunity cost of capital (after tax) (0%) and other (7%).

As it is easier and quicker to analyse property investments using computers, Newell et al. (1993, p. 453) also asked about computer usage. 88% of their respondents indicated that they used computers, with their most frequent uses being for computing rates of return (97%), forecasting and simulation (81%), sensitivity analysis (78%), and regression analysis (25%). This is a significant increase on the 27% computer usage found by Wiley (1976) over two decades earlier. Like Wiley (1976), computers were mainly used for rates of return calculations. However, there was an increased use of computers for forecasting and simulations.

To gather information on how institutional investors evaluated property investments, Newell et al. (1993), Boyd et al. (1995) and Rowland and Kish (2000, p. 107-108) asked their respondents about the property characteristics that influence their decision-making. In Newell et al. (1993), the respondents identified location as being the most important of the twenty eight property characteristics they were provided with on the survey. Four of the other characteristics, quality of tenants, investment/profit potential, property type and total returns, were regarded by 90% or more of the respondents as also being important. Newell et al. (1993, p. 452) commented that the finding that total returns were considered to be more important than cash flows was unexpected during a period of difficult market conditions. However, they recognised that this could be due to the long-term investment horizon of institutional investors. Boyd et al. (1995) only provided their respondents with 7 property characteristics to rank, which is significantly smaller than the 28 provided by Newell, et al. (1993). However, the responses to Boyd et al. (1995), like Newell et al (1993), indicated that location was the most important characteristic. Rowland and Kish's (2000, p. 107-108) question on property characteristics asked their respondents to choose between 21 characteristics when selecting direct property, 15 characteristics when selecting indirect property, and 13 characteristics for property assessment. The most important characteristics when investing in direct property were forecasts and the management team. Location was the most important characteristic when selecting a property fund to invest in. The low importance of property type is reflective of most of the property funds surveyed specialising in investing in one property type (Rowland and Kish, 2000, p.106). When doing property assessment, the characteristics covering total return dominated those covering the physical condition of the property. The same finding occurred in Newell et al. (1993)

Rowland and Kish (2000), Newell (2008) and Reddy (2012) asked questions on asset allocation. Questions on allocation strategy were included in Rowland and Kish (2000) and Reddy (2012), while Newell (2008) included questions on international property and the impact of the GFC on their allocation. They all asked their respondent's questions on direct property and indirect property investments.

The respondents in Rowland and Kish (2000) and Reddy (2012) were asked to indicate the allocation strategy that they used. In Rowland and Kish (2000), "tactical switching between asset classes" was the most used of the six strategies listed on the survey. Mean/variance optimisation was the least popular strategy. Reddy (2012) provided their respondents with eight strategies. The most important was "exploiting current buying opportunities" and the least important was "tactical

switching between asset classes". This is opposite to the finding in Rowland and Kish (2000), but no reason was provided by Reddy (2012) for this.

Rowland and Kish (2000) also asked their respondents for reasons why they invest in direct property and indirect property. Long-term stability was the main reason given by the respondents for investing in both direct property and indirect property, followed by diversification benefits and then anticipated high risk-adjusted returns. Inflation-hedging characteristics and tracking an index were not considered to be major reasons. However, inflation-hedging characteristics were seen as a more important reason for investing in direct property than indirect property, while the ability to track an index was a more important reason for investing in indirect property. Reddy (2012) asked a question on the use of tactical asset allocation and strategic asset allocation. The long term and illiquid nature of direct property investments would be better supported by strategic asset allocation than the shorter term tactical asset allocation strategy. This is supported in Reddy (2012), where 57% of all the respondents used the longer term strategic asset allocation strategy and only 21% used tactical asset allocation.

Newell (2008) and Reddy (2012) asked questions on portfolio allocation and the degree of investment in direct property and indirect property. When Newell (2008) undertook their survey, allocation to property by Australian superannuation schemes was one of the highest, at 10%, by pension funds in developed countries (Newell 2008, p. 670). The asset allocation to property by their respondents ranged from 9% to 16%, with an average of 12%. Their property exposure was, on average, 64% to direct property and 36% to indirect property. The majority of respondents responded that they had increased their exposure to direct property over the previous three years, 2005 to 2008. Their decrease in exposure to indirect property was mainly in Australian Real Estate Investment Trusts (A-REITs), as they had increased their holdings of unlisted wholesale property funds. Wholesale property funds can be seen to have a greater ability to generate returns similar to those of direct property than listed property (Newell 2008, p. 675). Four years later, Reddy's (2012) respondents who had a mixed-asset portfolio, on average, allocated 10% of their funds to property. This was less than the average allocation found by Newell (2008). The respondents to Reddy (2012) indicated that their target allocation to property is set by an investment committee. Regardless of this constraint, more than half of Reddy's (2012) respondents considered their current allocation to be optimal. Although some stated that their property exposure was relatively small, so that the decisions on the property allocation strategy was set several years ago and there was no need for change (Reddy 2012, p. 293). The respondents to Reddy (2012) also invested more in indirect property than direct property. The lower average allocation to property and the preference for indirect over direct property in Reddy (2012), relative to Newell (2008), could be because Reddy (2012) surveyed managed funds as well as superannuation schemes, while Newell (2008) only surveyed superannuation schemes. Superannuation schemes have a longer investment horizon than managed funds and direct property is a long term investment.

Newell (2008) asked their respondents about exposure to international property and their respondents indicated that exposure to global property funds was important. As their survey was during the GFC, Newell (2008) asked about the

impact of the GFC on future property allocations. 25% of the respondents indicated it would impact their allocation to both direct property and indirect property, 38% indicated it would not impact their allocation to direct property and 25% indicated it would not impact their exposure to listed property. However, the majority of respondents indicated that the GFC would mainly affect their shorter-term tactical allocation to property, rather than their strategic allocation. The respondents to Newell (2008) chose diversification benefits as the most important factor when choosing between investing in direct property and A-REITs. These responses imply that in the uncertain climate of the GFC, property investors were more forward thinking and focused on the diversification benefits of direct property (Newell 2008, p. 674).

Newell et al. (1993) is the only Australian study to ask their respondents a question on diversification. They did not ask the respondents for the diversification strategy they preferred. Instead they asked respondents about their current level of location and property type diversification. They found that their respondent's location diversification was limited, with 78% having more than half of their property investments in one location. The most popular locations being Sydney, Brisbane and Canberra and their level of investment in overseas property markets being relatively low. The respondents also specialised with respect to property type and mainly invested in CBD office and suburban retail.

The use of a benchmark to measure the performance of property investments was covered in Rowland and Kish (2000), Newell (2008) and Reddy (2012). Rowland and Kish (2000) asked their respondents to indicate a comparative rate of return as a benchmark, rather than an index. The respondents indicated they preferred to compare the return on direct property with the weighted average cost of capital and the return on indirect property with the bond rate. In Newell (2008), the majority of respondents matched the return on their property investments to a property index. Reddy's (2012, p.301) respondents used both domestic and overseas property indices as performance measures for direct, unlisted property funds and listed property. In both Newell (2008) and Reddy (2012), the main domestic benchmarks were the S&P/ASX A-REIT Accumulation Index and Mercer Unlisted Property Index for domestic property and the main global property benchmark was EPRA/NAREIT Global Property Securities Index.

Newell (2008) and Reddy (2012) ask about the use of asset consultants by their respondents in their decision-making on property investments. Newell's (2008) respondents indicate that advice from asset consultants assists in strategic decision-making, as well as the allocation between direct property and indirect property and selection of property funds. The respondents to Reddy (2012, p.291) indicated they mainly used in-house management, particularly the mixed-asset managed funds and property funds. However, some only used external managers or advisors or used both. The use of external managers and advisors was more prevalent with the superannuation schemes surveyed. Table 5.3 summarises the general findings across the Australian surveys.

Table 5.3 – Australian Surveys on Decision-making Factors

Factor	General Findings
Property Type	Office and Retail
<i>Return Analysis</i>	<i>Mainly use internal rate of return followed by initial yield</i>
Holding Period	Typically less than 10 years for direct property and less than 3 years for indirect property
<i>Risk Analysis</i>	<i>Mainly use sensitivity analysis and scenario analysis. Risk analysis was undertaken by most respondents.</i>
Computer Usage	Used by most of the respondents to calculate rates of return, forecasting and simulations
<i>Property Characteristics</i>	<i>Location, forecasts and the management team are important. Total return characteristics are more important than physical condition.</i>
Diversification Strategy	Property type and geographical location although the level of diversification in these areas is minimal
<i>Benchmark Indices</i>	<i>Property indices are used by most respondents</i>
Asset Allocation	Mainly use strategic allocation, invest in direct and indirect property and there has been a decrease in listed property and increase in wholesale unlisted property funds.
<i>External managers/advisors</i>	<i>Used more by superannuation schemes than other managed funds</i>

5.2.4 Summary of Surveys on Institutional Investment in Property

The surveys on property investment decision-making by institutional investors, since the first survey by Wiley (1976), differ in terms of the economic and financial environment over the period being surveyed, the categories of institutional investors surveyed, the country where the respondents reside, the questions included and how the questions are asked. This prevents the findings from the majority of surveys being directly compared. A summary of the factors covered in each survey is provided in Table 5.4.

Table 5.4 – Factors covered in Each Survey

Factor	Survey
Property Type	Wiley (1976), Page (1983), Webb (1984), Webb and Macintosh (1986), Newell, et al. (1993) and Worzala and Bajtelsmit (1997).
Return Analysis	Wiley (1976), Page (1983), Webb (1984), Webb and Macintosh (1986), Farragher (1982), Louargand (1992), De Witt (1996), Newell, et al. (1993), Boyd, et al. (1995), De Witt (1996), Farragher and Kleiman (1996), Rowland and Kish (2000) and Farragher and Savage (2008), Newell (2008) and Reddy (2012)
Holding Period	Wiley (1976), Webb (1984), Webb and Macintosh (1986), Newell, et al. (1993), Boyd, et al. (1995), Farragher and Kleiman (1996), Rowland and Kish (2000) and Farragher and Savage (2008)
Risk Analysis	Wiley (1976), Page (1983), Webb (1984), Webb and Macintosh (1986), Farragher (1982), Louargand (1992), Boyd, et al. (1995), De Witt (1996), Farragher and Kleiman (1996), Rowland and Kish (2000), Farragher and Savage (2008) and Reddy (2012)
Computer Usage	Wiley (1976), Page (1983), Webb (1984), Webb and Macintosh (1986), Newell, et al. (1993)
Ratio Analysis	Page (1983)
Impact of ERTA	Page (1983)
Diversification Strategy	Webb (1984), Webb and Macintosh (1986), Louargand (1992), Worzala and Bajtelsmit (1997), De Witt (1996), Farragher and Savage (2008), Newell, et al. (1993)
Review of Performance	Farragher (1982), Farragher and Kleiman (1996) and Farragher and Savage (2008)
Performance Goal	Louargand (1992), De Witt (1996)
Benchmark Indices	Louargand (1992), De Witt (1996) and Newell (2008)
Asset Allocation	Worzala and Bajtelsmit (1997), Farragher and Kleiman (1996), Rowland and Kish (2000), Farragher and Savage (2008), Newell (2008) and Reddy (2012)
External Manager/Advisor	Worzala and Bajtelsmit (1997), Newell (2008) and Reddy (2012)
Property characteristics	Newell, et al. (1993), Boyd, et al. (1995) and Rowland and Kish (2000)

While a direct comparison cannot be made between the surveys, ten findings can be extracted from the surveys. Firstly, institutional investors prefer to invest more in office and retail property than the other property types, industry and residential. Secondly, internal rate of return has replaced initial yield as the measure of return. Thirdly, the preferred holding period used in quantitative analysis is likely to be between 5 to 10 years. Fourthly, sensitivity and scenario analysis have replaced the basic techniques of adjusting returns or benefits in risk analysis. In addition, in

Australia, risk analysis is now used by most institutional investors. Fifthly, there has been an increased use of computers in quantitative analysis and they are used to calculate rates of return, forecasting and simulations. Sixthly, diversification of the property portfolio is mainly undertaken in terms of property type and geographical location. Seventhly, property indices are now used by most institutional investors as a benchmark to measure performance of their property portfolio. Eighthly, in asset allocation, strategic allocation is used more than tactical allocation. In Australia, institutional investors have increased their allocation to direct property relative to indirect property and increased their level of investment in wholesale unlisted property funds relative to listed property. Ninthly, the United States surveys found that smaller institutional investors use external investment managers and advisors to assist them in property investments, while the larger institutional investors had sufficient funds to in-house manage their property investments. The Australian surveys found that superannuation schemes are more likely to use external investment managers and advisors than other mixed asset funds. Lastly, the majority of institutional investors now regularly review the performance of their property investments.

The surveys undertaken in the United State and Australia were mail surveys, with response rates of less than 50%. Low response rates are a typical problem encountered by mail surveys. Even with low response rates, the sample sizes of the surveys undertaken in the United States are still very large in absolute terms due to the large population of institutional investors in the United States. Unfortunately, this was not possible for the Australian studies, due to the relatively low number of institutional investors in Australia. The face-to-face surveys undertaken in the Netherlands by De Wit (1996) had a response rate of 87.5%. A mail survey would not have been able to generate such a high response rate. The number of institutional investors in the Netherlands is considerably smaller than in the United States, so a low response rate would have generated a very small sample size. A major benefit of face-to-face interviews over mail surveys is that they improve the reliability of the responses, as the researcher can identify when respondents misinterpret or misunderstand questions.

5.3 Multi-Criteria Decision-Making Methodologies

The surveys just reviewed on decision-making by institutional investors, contained survey questions that provided their respondents with a group of factors all at once. The respondents were then required to select which factor they preferred or to rank them. This can prove to be cognitively difficult for some respondents, as they are unable to indicate the strength of their selection or rank. Consequently, they can disproportionately favour one factor over the other factors (Saaty and Vargas, 2012). A survey questionnaire constructed based on a multi-criteria decision-making (MCDM) model would allow the respondents to indicate the degree of importance they place on the alternatives they are choosing between.

MCDM models are suitable for analysing decision-making which involves selecting between alternative actions that involve qualitative and/or quantitative criteria. The unique characteristics of property mean that decision-making on property investments are mainly subjective and qualitative decisions, such as personal judgements, on what action to take when investing in property. Unlike the major asset classes, the illiquid nature of property makes it difficult to get access to large sets of quantitative data. Consequently, a questionnaire survey based on a MCDM model is appropriate for institutional investors who consider several independent qualitative factors when making decisions on the composition of their property portfolio.

MCDM requires the alternative decisions to be discrete and predetermined. Numerical methods are used to allow a choice to be made from a discrete set of alternative decisions. This is done by dividing a decision problem into smaller alternative decisions that can be analysed separately. The alternative decisions are then combined to generate a meaningful solution. This allows the properties of the alternatives and the criteria that will be used in the selection process to be taken into account. Triantaphyllou (2000, pp. 5-6) maintains the numerical analysis of MDCM models involves three steps:

1. The criteria that affect the decision and the alternatives for each criterion are determined.
2. Numerical measures reflecting the relative importance of the criteria and influence the alternatives have on the criteria is calculated.
3. The numerical measures are then used to determine the ranking of each of the alternatives.

A review will now be made of four main MCDM models used in survey questionnaires; the weighted sum model (WSM), the weighted product model (WPM), the elimination and choice translating reality¹⁰⁷ (ELECTRE) method and the analytic hierarchy process (AHP).

5.3.1 The Weighted Sum Method (WSM)

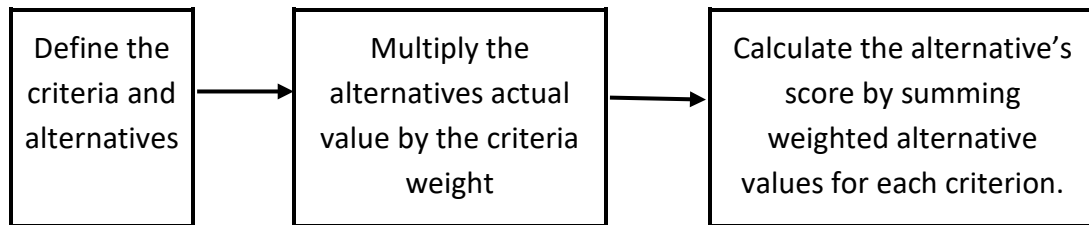
The most commonly used MCDM model is the weighted-sum method (WSM). It will find the best alternative from m alternatives that are subject to n criteria. The criteria will have weights that sum to 1. The value of the alternative for a criterion will be multiplied by the criterion's weight. The score for each alternative will be calculated by summing the weighted alternatives values for all the criteria. The best alternative will be the one that maximises the following equation (Fishburn 1967, p.538):

¹⁰⁷ This is the English translation of the original French title.

$$A_{WSM} = \max_i \sum_{j=1}^n a_{ij} w_j \quad \text{for } i = 1, 2, 3, \dots, m \quad (1)$$

A_{WSM} is the score of the best alternative, n is the number of criteria, a_{ij} is the value of the i -th alternative with respect to the j -th criterion and w_j is the weight of the j -th criterion. It is based on the additive utility assumption, where the sum of the products will be the total value of an alternative. A weakness of this model is that it is only suitable for single-dimension problems, where the unit of measure is the same. When the unit of measure differs, which occurs when there are both qualitative and quantitative attributes, and it is a multi-dimensional problem, the additive utility assumption does not hold. Normalisation will need to be used when this assumption is violated. Figure 5.1 summarises this process.

Figure 5.1 WSM Methodology



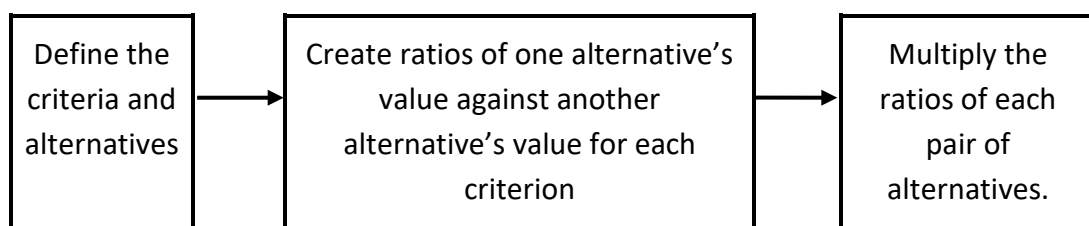
5.3.2 The Weighted Sum Product (WPM)

The weighted product method (WPM) is very similar to the WSM. However, rather than using summation, the WPM uses multiplication. The alternatives are compared by multiplying the ratios of the alternatives for each criterion. Each ratio is raised to the power equivalent to the relative weight of the corresponding criterion. The following equation calculates the product that will be used to compare two alternatives, A_K and A_L (Millar and Star 1969):

$$R(A_K/A_L) = \prod_{j=1}^n (a_{Kj}/a_{Lj})^{w_j} \quad (2)$$

Like equation (1), n is the number of criteria, a_{ij} is the value of the i -th alternative with respect to the j -th criterion and w_j is the weight of the j -th criterion. The process is shown in Figure 5.2.

Figure 5.2 WPM Methodology



In this pair-wise comparison, the best alternative, under the maximisation case, will be the one that is better than or equal to the other alternatives. In equation (2), A_k will be preferred to A_L when $R(A_k/A_L)$ is greater than or equal to one. As relative values rather than true values are used, the units of measure are eliminated. This solves the multiple units of measure problem with the weighted sum method (WSM).

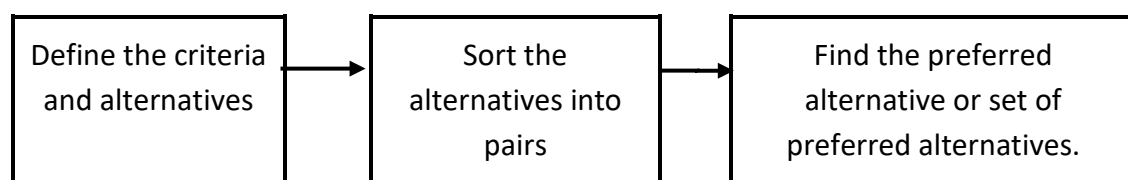
5.3.3 Elimination and Choice Translating Reality (ELECTRE)

The basic concept of the elimination and choice translating reality (ELECTRE) method is to use the outranking relationship on pair-wise comparisons of alternatives (Triantaphyllou 2000, p. 13). It was developed in the mid-1960s as an alternative to the weighted sums technique for the multi-criteria problem of choosing between activities.

The alternatives are sorted into pairs. Then the decision maker decides whether one of the alternatives in a pair, say, A_i and A_j , is preferred over the other alternative. An alternative is regarded as being dominated if another alternative is seen to be better than this alternative in one or more of the criteria and equal to them under the other criteria. The outranking relationship will allow the decision maker to decide that one alternative is better than the other alternative, even though quantitatively this alternative does not dominate the other alternative. However, there will be a threshold level where the decision maker regards they are indifferent between the pair of alternatives.

While the least favourable alternatives can be dropped, the binary outranking system will not be complete if the preferred alternative is not found. A set of preferred alternatives should exist (Lootsma 1990, p. 265). If this is the case then another MCDM model could be used to find the best alternative from the set of favoured alternatives. The ELECTRE method is extremely suitable when the decision problem involves a few criteria but a large number of alternatives. The ELECTRE methodology is shown in Figure 5.3.

Figure 5.3 ELECTRE Methodology



5.3.4 The Analytic Hierarchy Process (AHP)

The Analytic Hierarchy Process (AHP) is a MCDM process that organises criteria, which will now be referred to as factors, into a hierarchical structure. It then

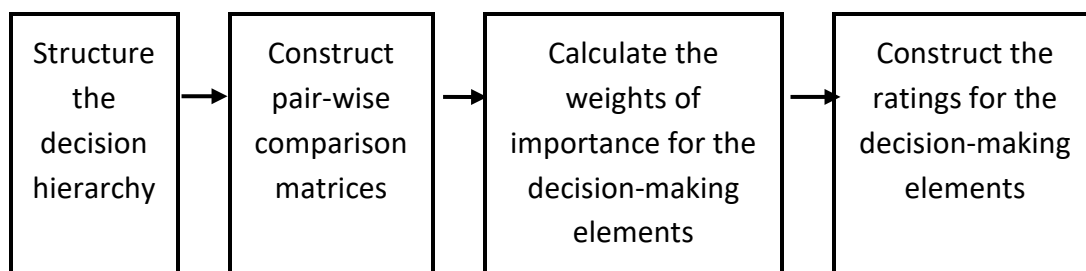
uses pair-wise comparisons of alternatives to determine the importance of each alternative relative to the other alternatives in terms of each of the factors. So like WPM, it uses relative measures rather than absolute measures. The hierarchy is made up of several levels where the factors on each level are independent or homogenous and factors on lower levels are decompositions of the factors on the level above. General factors would be on the upper levels and more specific factors, known as sub-factors, would be on the lower levels (Saaty 1987, pp. 161-162). The process was introduced by Saaty in 1980 and has been applied to decision-making over a wide range of areas, such as military analysis and college student admissions (Saaty 2008, pp. 95-97). AHP can be used in property investment decisions to find the factor that is regarded as being the most important to use or the relative importance of each of the alternative factors. Most of the factors used when investing in property are based on personal judgements and cannot be quantified. So rather than calculating a quantity value for each of the factors, the relative importance, or weight, of each of the factors in terms of the other factors can be determined.

AHP uses matrices to generate the relative importance of a set of factors and sub-factors. The subjective judgments of decision makers are the input used by AHP and the output will be the relative importance of each of the alternative factors. AHP computes the output by allowing the factor to be ranked in terms of their priority using pair-wise comparisons. Under AHP, like ELECTRE, the factors will be judged by decision-makers in pairs based on their relative importance. These judgements will be represented by numbers taken from a particular scale. This allows a pair-wise comparison matrix to be constructed for the factors. The same process will be used to construct a pair-wise comparison matrix for the sub-factors. The matrices will then be used to generate weights, so that the final priorities can be determined (Saaty 1987, pp. 162-163). This overall hierarchy decomposition can be summarised in the following four main steps and is shown in Figure 5.4 (Zahedi 1986, p. 96).

1. *Structure the decision hierarchy to identify what will be on each level.* The decision problem needs to be defined and becomes the decision goal at the top level of the hierarchy tree. The levels below will be made of the decision-making elements, that is factors and sub-factors, which are used to reach this goal.
2. *Pair-wise comparison matrices are now constructed.* The data used in the AHP is gathered from pair-wise comparisons of the factors and sub-factors. Pair-wise comparisons are made of the alternative factors on the first level and then pair-wise comparisons of the alternative sub-factors on the second level for each factor are made. These pair-wise comparisons become the elements in the judgemental matrices.

3. *The priorities derived from the pair-wise comparisons are used to calculate the weights of importance for each of the decision-making elements.* The weights are calculated by applying the eigenvalue method to the judgemental matrices.
4. *The weights of importance are used to construct the ratings for the decision-making elements.* AHP will determine measures of the relative performance of the alternatives with respect to each of the individual decision factors and sub-factors. The overall priority for each of the factors and sub-factors can now be determined. As the factors and sub-factors use qualitative judgement rather than quantitative data, problems can arise with the consistency of the comparisons. This is because human judgement can be inconsistent. AHP allows the consistency of the priority comparisons to be improved if they are not perfectly consistent.

Figure 5.4 AHP Methodology



5.4 The Selected Methodology is AHP

After considering the alternative MCDM models, it was decided that the questionnaire survey in this thesis will be based on the AHP model. Like ELECTRE, pair-wise comparisons are made between all the alternative choices, which is superior to considering all the factors at the same time. However, ELECTRE requires the least favourable alternatives to be eliminated, while AHP results in each of the alternatives being given a weight of importance. Another benefit of AHP is that it does not require a large sample size for the results to be statistically robust and reliable (Saaty, 1980). As long as the factors and sub-factors are independent, the survey responses will reflect the relative importance of the factors to the respondents.

Furthermore, the AHP methodology has been used in multi-criteria decision-making studies in the property industry for more than a decade. For example, stigma assessment in property valuation (Chan, 2002); location value of residential property (Kauko, 2003); risk scoring procedures for property investments (Hutchison et al., 2005); the quality of CBD office buildings (Ho et al., 2005); decision-making on hotel investments (Newell and Seabrook, 2006); risk in property development (Newell and

Steglick, 2006); development in office buildings (Adnan et al., 2009); construction technical innovation by small and medium enterprises (Hardie and Newell, 2011); and risk assessment in office property valuation (Gupta and Tiwari, 2016). These studies used AHP, instead of other modelling techniques, as it allowed them to use qualitative factors to determine the best alternative decision or the relative importance of the alternative decisions (Saaty, 2008). The AHP hierarchical structure used in this thesis will be explained in the next chapter on methodology.

CHAPTER 6

RESEARCH METHODOLOGY

Chapter 6 begins by providing a detailed explanation of how the Analytic Hierarchy Process (AHP) value tree was constructed. The selection of the survey group is then explained. This is followed by a description of how the AHP methodology is used in the survey and inconsistent survey responses are dealt with. The statistical tests to be undertaken on the survey responses are then described. Finally, the survey process is described.

6.1 The Analytic Hierarchy Process (AHP) Value Tree

In Chapter 5, a constructive analysis was undertaken on different ways that could be used to survey superannuation schemes on their property investment decision-making. As the factors used when making decisions on property investment are more qualitative than quantitative, the Analytic Hierarchy Process (AHP) has been selected as the best methodology to be used in this thesis.

AHP allows the decision-making factors to be organised in the form of a Value Tree hierarchy that starts with a decision goal and then is broken down into a hierarchy of factors of the decision goal and sub-factors associated with these factors. The decision goal is at the top of the tree, the general factors on the upper level of the tree, and the sub-factors that each general factor can be broken down into on the lower level. There are several approaches that can be used to select the hierarchy in an AHP Value Tree. Recommendations from individual experts, a group of experts, or findings from published studies are three commonly used approaches. In order to select the best factors to include on each level of the Value Tree, a combination of two of these approaches was used. Firstly, a list was written up of the factors and sub-factors, identified in the surveys discussed in the Literature Review in Chapter 5, on property investment by institutional investors as having a major influence on property selection. Secondly, advice from two academics who extensively publish in the area of property investment was used to select the factors and sub-factors from this list to be on the Value Tree. The academics' advice ensured that the factors and sub-factors selected are independent. This is an important condition required by AHP. This thesis examines the relative importance of all the alternative factors under consideration rather than finding the best alternative¹⁰⁸.

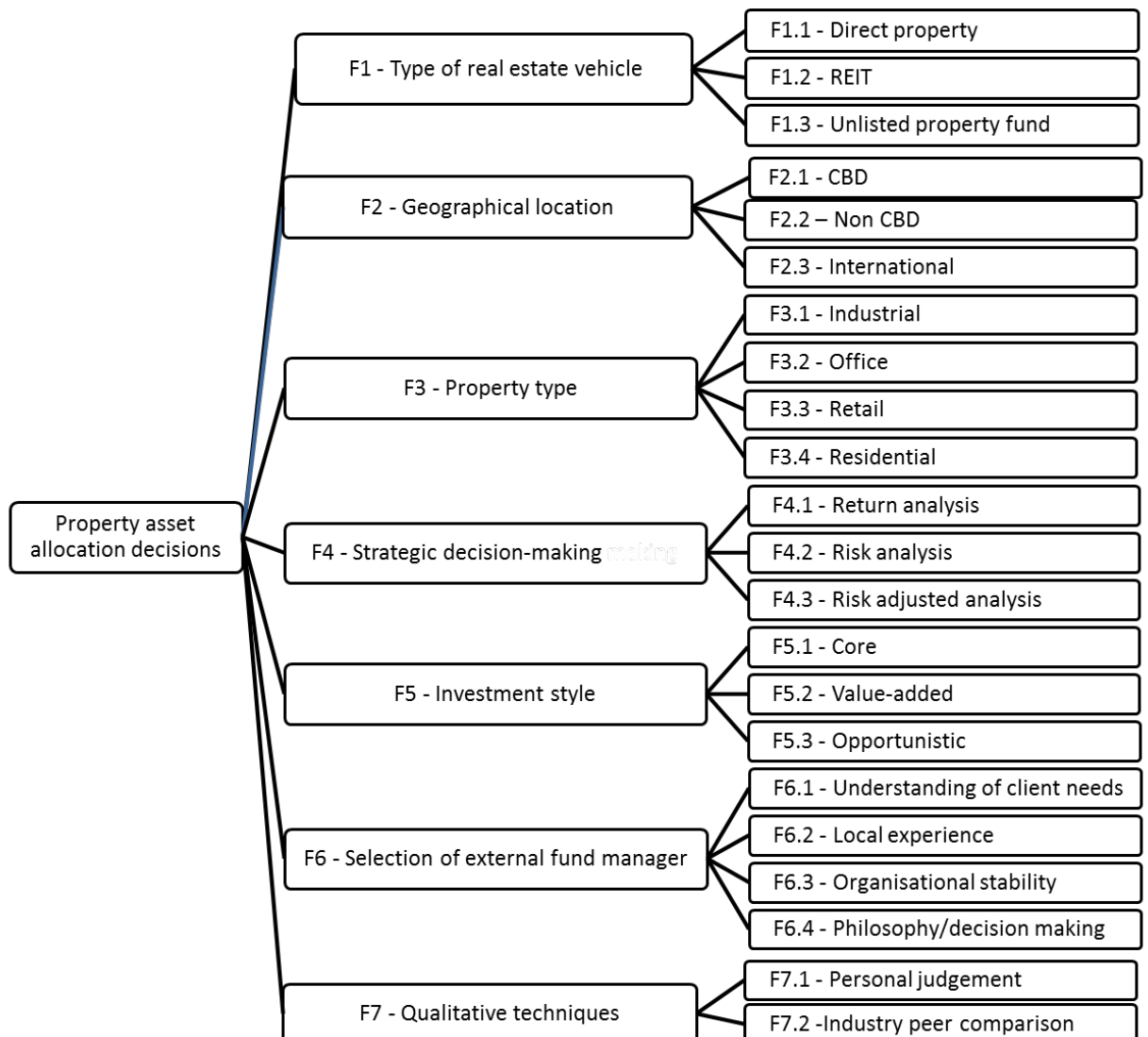
As the Value Tree is being used in a survey, it is important to ensure the survey respondents will not be overwhelmed by the number of factors and sub-factors they will be comparing and likely to make less judgemental and consistent responses towards the end of the survey (Millet and Harker 1990, pp. 88-89). Consequently, the number of factors and sub-factors included in the survey was limited to an amount that allowed respondents

¹⁰⁸ AHP can be used to determine the best alternative or the relative importance of the alternatives (Saaty 2008, p. 84)

to comfortably complete the survey in thirty minutes. In addition, the maximum number of factors, and sub-factors for each factor, was restricted to seven. Psychological experiments have shown that individuals find it difficult to simultaneously compare more than seven items (plus or minus two) (Millar 1956). A competent decision-maker should be able to easily make relative judgements over seven items. The thirty minute time limit would also make it easier to attract respondents holding senior managerial positions that had very little spare time to complete the survey.

The resulting final selection of factors and sub-factors were used to construct the Value Tree presented in Figure 6.1. The decision goal in this thesis is property asset allocation decisions. On the next level of the tree, there are 7 factors. These are the type of real estate vehicle, geographical location, property type, strategic decision-making, investment style, selection of external fund manager, and qualitative techniques. On the lower level of the tree, there are 22 sub-factors spread across each of the factors. The number of sub-factors for a factor range from 2 to 4. The Value Tree will be the major focus of the empirical study that will be undertaken in this thesis.

Figure 6.1 Value Tree of Criteria that Affect Decisions on Property Asset Allocation.



The factors and sub-factors on the Value Tree are described below¹⁰⁹:

F1. *Type of real estate*: There are several types of real estate investments that can be included in a portfolio. They mainly differ in terms of the amount of funds needed to make the investment; the ease of buying and selling the investment; and the entry and exit costs.

F1.1 *Direct property*: This is the purchase of physical property and requires a substantial amount of funds, as it is a large asset that is difficult to sub-divide. The expensive cost makes it less liquid than the alternative types of property and often requires the use of borrowed funds. The entry and exit costs are also considerably higher as purchases and sale of the property can be subject to real estate agent commissions, lawyers and engineer's fees, taxes and duties and trading of physical property is not done on an exchange.

F1.2 *Real Estate Investment Trusts (REITs)*: These are portfolios of property assets purchased using pools of funds from investors and managed under a trust arrangement. They are listed on a stock exchange and units in REITs are traded like equities. They are generally diversified across "different regions, lease lengths and property types" (Australian Securities Exchange, 2015). Some REITs specialise in purchasing particular types of property (e.g. industrial REITs, office REITs, retail REITs) while others diversify across property types. As the units in REITs are traded on an exchange and are substantially less expensive than direct property, they are more liquid and subject to lower entry and exit costs.

F1.3 *Unlisted property funds*: These are similar to REITs, in that they are portfolios of property assets purchased using pools of investor's funds under a fund arrangement. However, they are not listed and traded on a stock exchange, so units in these funds are not as liquid as REITs. They can be held in either open-end or close-end property funds. However, like REITs, the units are less expensive and have lower entry and exit costs than direct property.

F2. *Geographical location*

F2.1 *Central Business District (CBD)*: This is the central district of a city where there is a concentration of retail and office buildings.

F2.2 *Non Central Business District (non-CBD)*: This is a suburban area outside of the CBD where there is less concentration of retail and office buildings.

F2.3 *International*: This is overseas locations.

F3. *Property type*

F3.1 *Industrial*: These are warehouses, factories, logistics and industrial parks.

F3.2 *Office*: These are office buildings and office parks.

F3.3 *Retail*: These are retail stores and shopping centres.

¹⁰⁹ Most of these descriptions are general knowledge or sourced from Brueggeman and Fisher (2011).

F3.4 *Residential*: These are single-family and multi-family residences.

F4. *Strategic decision-making*

F4.1 *Return analysis*: This is the use of various measures of the return on the property investment. Property return can be measured using direct capitalisation rate or initial yield, return on initial equity investment, internal rate of return, and net present value.

F4.2 *Risk analysis*: This is the use of various measures of the risk of the property investment. Property risk can be measured using standard deviation, sensitivity analysis, scenario analysis, and asset beta.

F4.3 *Risk adjusted analysis*: This is the use of various measures that combine the influence of return and risk (e.g. Sharpe ratio, Treynor ratio and Sortino ratio).

F5. *Investment style*

F5.1 *Core*: The goal of this style is to invest in low risk property that realises stable cash flows and generates a return consistent with similar properties. The investment profile will typically be low leverage and low return/risk.

F5.2 *Value-added*: The goal of this style is to invest in property that can be purchased at a discount to the replacement cost or could be subject to renovations, subdivisions and/or rezoning in the future. This could increase the property's cash flow and generate a return higher than similar properties. The investment profile will typically be moderate leverage and moderate return/risk.

F5.3 *Opportunistic*: The goal of this style is to invest in properties that can potentially increase in value, but at a higher level of risk than the other two styles. The investment profile typically will be high leverage and high return/risk.

F6. *Selection of external fund managers*

F6.1 *Understanding of client's needs*: This covers the manager's understanding of the return and risk goals of the client and the constraints they face in achieving these goals.

F6.2 *Local experience*: This covers the manager's historical property investment in the local area.

F6.3 *Organisational structure*: This covers the history and structure of the manager's organisation, employee turnover, and significant increases/decreases in their number of clients. These factors will influence the stability of the organisation.

F6.4 *Philosophy and decision-making*: This covers the philosophy and decision-making used when selecting investments.

F7. *Qualitative techniques*

F7.1 *Personal judgement*: Making decisions based on personal opinion and previous experience.

F7.2 Industry peer comparison: Making decisions based on decisions made by other property investors.

6.2 The Selection of Survey Respondents

Selection of the survey respondents was based on the criterion that they made decisions on property investment in a superannuation scheme. They were chosen if they were a chief investment officer or investment manager of a superannuation scheme or employed by superannuation schemes as an advisor. There are four types of superannuation schemes: industry schemes, corporate schemes, public sector schemes and retail schemes. Only respondents from non-profit superannuation schemes were considered, as the sole beneficiary of their investment profits is their members. Industry schemes, corporate schemes and public sector schemes are non-profit schemes, while retail schemes are for profit. Retail schemes were established to provide services to people saving for their retirement, as well as to make a profit for themselves while doing this. Consequently, the long-term interests of members of retail superannuation schemes may not be the only concern of the financial institutions that manage them. In addition, as these institutions also offer portfolio managed funds, such as public unit trusts, to their clients to invest in, their approach to property investment for all the managed fund products offered to their clients might be similar. The respondents completed the questionnaire survey by way of a face-to-face interview. The benefits of this survey approach are discussed in section 6.7.

The Annual Fund-Level Superannuation Statistics report published by APRA was used to identify potential survey respondents. The June 2015 report revealed that two hundred and fourteen superannuation schemes invested in property. One hundred and thirteen of these were non-profit schemes, with forty nine being industry schemes, forty six being corporate schemes and eighteen being public sector schemes. Twenty eight of these were removed as their chief investment officer was the same as that of another superannuation scheme. The property investment decisions for each of the superannuation schemes that had the same chief investment officer might be different. However, the chief investment officer was limited to giving a single judgement on the factors and sub-factors. This single judgement may not reflect the decision-making of all the superannuation schemes they are responsible for.

This left a pool of eighty five potential respondents. From this pool, the contact details of twenty two were found over a period of six months. The contact details for the respondents were obtained from the website of their superannuation schemes, Linked-in or Zoominfo. For most of the superannuation schemes, several people had to be contacted to find out who was responsible for making decisions on property investment. This sample of twenty two only makes up 26% of the population of eighty five. However, it is a very broad sample, as it includes industry, corporate and public sector schemes. For each of these types of superannuation schemes, wherever possible small, medium and large superannuation

schemes were selected. While the researcher would have liked to survey a larger number of superannuation schemes, they live in Sydney so the cost and time involved in doing each survey prevented this from occurring. The travel costs and the small number of potential respondents in some locations meant that the contact details of only Sydney, Melbourne and Canberra based superannuation schemes were sought. Given the market focus in Sydney and Melbourne, this strategy was considered to be suitable and effective. Furthermore, direct contact with the chief investment officer for some of the Sydney and Melbourne based superannuation schemes could not be obtained.

Two of the public sector schemes contacted by the researcher said that they were not allowed to participate in surveys. This meant that twenty of the twenty two superannuation schemes identified and contacted were able to be interviewed. The response rate was 80%, with one public sector scheme, two corporate schemes and seventeen industry schemes being interviewed. The concentration of industry schemes in the sample is reflective of the majority of Australian non-profit schemes being industry schemes. Only five of the twenty superannuation schemes could be interviewed in Sydney. Interstate trips were required to interview the remaining fifteen. While twenty superannuation schemes may be regarded as a small sample size, the AHP technique does not require input from a large sample. The use of pairwise comparisons of independent factors organised in a hierarchical manner allows AHP to generate robust and reliable results from a small sample. Saaty (1980) has illustrated how AHP can be beneficial even when there is only one respondent. When respondents are asked to make choices between all the factors, rather than a pair of factors, the cognitive load will be considerably higher. This will make it difficult to obtain statistically significant results unless there are a large number of survey responses.

Table 6.1 shows the total AUM, the percentage of the portfolio invested in property and the resulting property AUM for each of the twenty superannuation schemes interviewed as at June 2015¹¹⁰. They are listed in the order that they were interviewed. Their AUM ranges from \$1.95 billion to \$118.4 billion, with the average AUM being \$27.86 billion. The percentage of their AUM that they invest in property ranges from 6% to 14%, leading to the property AUM varying from \$1.76 billion to \$8.53 billion, with an average of \$2.46 billion. In total, the surveyed superannuation schemes have \$557.26 billion in AUM and \$49.15 billion in property AUM, with property accounting for 9% of the total AUM.

The responses made by the larger superannuation schemes to some of the questions were not consistent with the responses by the smaller superannuation schemes. In the interviews, it was found that the smaller superannuation schemes used the services of asset consultants substantially more than the larger schemes. So the AHP survey data was separated into sub-groups; small, medium or large, based on their property AUM and their ability to make decisions without relying only on the advice from asset consultants.

¹¹⁰ The total AUM and % property for nineteen of the superannuation schemes were taken from statistics provided by APRA. The twentieth was taken from its annual report as at the 31st December 2017.

Superannuation schemes with property AUM of less than \$1 billion were grouped as small superannuation schemes. These schemes only used the external fund managers recommended to them by asset consultants appointed by their Boards. Medium superannuation schemes had property AUM between \$1 billion and \$7 billion and large superannuation schemes had property AUM of more than \$7 billion. The large superannuation schemes rarely used asset consultants, having significant in-house property experience. The number of superannuation schemes in each sub-group is not the same. There are nine small, eight medium size and three large superannuation schemes. An analysis of the data collected from each of these sub-groups was undertaken after the data from all of the superannuation schemes was analysed as a single group.

Table 6.1 Assets Under Management (AUM) for the Superannuation Schemes

	Total AUM	% Property	Property AUM
Respondent 1	\$7.028 B	6%	\$0.422 B
Respondent 2	\$53.872 B	6%	\$3.232 B
Respondent 3	\$31.753 B	11%	\$3.493 B
Respondent 4	\$33.512 B	8%	\$2.681 B
Respondent 5	\$51.092 B	14%	\$7.153 B
Respondent 6	\$9.854 B	9%	\$0.887 B
Respondent 7	\$8.774 B	8%	\$0.702 B
Respondent 8	\$1.950 B	9%	\$0.176 B
Respondent 9	\$11.415 B	9%	\$1.027 B
Respondent 10	\$118.400 B	6.5%	\$7.696 B
Respondent 11	\$94.802 B	9%	\$8.532 B
Respondent 12	\$4.280 B	10%	\$0.428 B
Respondent 13	\$18.040 B	11%	\$1.984 B
Respondent 14	\$9.727 B	7%	\$0.681 B
Respondent 15	\$4.801 B	6%	\$0.288 B
Respondent 16	\$2.690 B	9%	\$0.242 B
Respondent 17	\$3.108 B	10%	\$0.311 B
Respondent 18	\$18.428 B	14%	\$2.580 B
Respondent 19	\$39.363 B	9%	\$3.543 B
Respondent 20	\$34.369 B	9%	\$3.093 B
<i>Total respondents = 20</i>	<i>\$557.257 B</i>		<i>\$49.150 B</i>
<i>Average</i>	<i>\$27.86 B</i>	<i>9%</i>	<i>\$2.4575 B</i>

In Australia, there are very few superannuation schemes that have a sufficient level of funds and expertise to invest in direct property by themselves. As a result, the majority of superannuation schemes invest in direct property through unlisted property funds. Unlisted property funds provide the superannuation schemes with access to attractive property investments through experienced property fund managers (Parker 2016, p. 382). Due to the

heavy reliance on property fund managers by Australian superannuation schemes, a sample of property fund managers were also surveyed to see if their responses to the survey questions differed from that of the superannuation scheme respondents.

The property fund managers were selected using the criterion that they were a fund manager of an Australian property fund, the fund they managed mainly invested in direct property, their property investments were in Australia, and they were located in Sydney. The decision to only survey funds investing mainly in direct property and not Australian Real Estate Investment Trust (A-REITs) was due to correlation being found to exist between share market returns and returns on REITs (Goetzmann and Ibbotson 1990; Hoesli and Oikarinen 2012). This could be expected as A-REITs are listed on the Australian Securities Exchange (ASX), so general share price movements could influence movements in the unit prices of A-REITs. Property security funds that only invest in other property funds were also not surveyed as they do not make the final decision on what property to invest in. The restriction to survey only Sydney based property fund managers was due to the researcher residing in Sydney. As most of the largest property fund managers used by superannuation funds are located in Sydney, this restriction did not prevent them from being surveyed.

The 2015 edition of the Australian Property Funds Industry Survey¹¹¹ published by Property Investment Research (PIR) was used to identify the respondents that meet the criterion. This publication provides the most current comprehensive database on Australian property funds. Seventy six property fund managers were profiled in the 2015 edition. In total, they managed three hundred and nine property funds. Of the seventy six property fund managers, twenty six were not located in Sydney, six of the Sydney based property fund managers only invested in Real Estate Investment Trusts (REITs), and one did not invest in Australia. After removing these thirty three, forty three property fund managers were left that meet the criterion. Interviews were able to be organised with respondents from fourteen of the property fund managers. Eight of these managed a diversified property portfolio, three managed an office property portfolio, two a retail property portfolio and one an industrial property portfolio. While the interviewed property fund managers made up only 33% of the final group of forty three property fund managers that met the criterion, the majority managed some of the largest property portfolios in Australia. The total AUM for the property fund of the respondent and the total AUM managed by the respondent are provided in Table 6.2. It shows a total of \$171.55 billion property AUM being held by these property fund managers.

During the interviews, no pattern was observed in the responses made by the property funds. However, a decision was made to see if the responses made by the respondents from the four different types of funds were dissimilar. To do this, four sub-groups, diversified, retail, office and industrial, were extracted from the AHP survey data. The sub-groups could not be based on size, as it was difficult to accurately determine where

¹¹¹ Property Investment Research (2015) *Australian Property Funds Industry Survey*: Fourteenth edition.

the divisions for small, medium and large should be. The eight diversified property fund managers made up close to sixty percent of the fourteen property fund managers surveyed. However, the remaining six property fund managers that specialised in investing in retail, office or industrial property held some of the largest property portfolios in these specialist areas in Australia. As a result, although there were only three investing in retail property, two in office property and one investing in industrial property, their responses should be reflective of the decision-making made by property fund managers only investing in retail, office or industrial property. Consequently, following the analysis of the AHP data for all fourteen property fund managers, the four sub-groups are analysed separately.

Table 6.2 Assets Under Management (AUM) for Property Funds¹¹²

	Total AUM of Property Group	Total AUM for Respondent	%
Respondent 1	\$3.617	\$3.239	90%
Respondent 2	Not available	Not available	100%
Respondent 3	\$19.384	\$5.800	30%
Respondent 4	\$33.000	\$33.000	100%
Respondent 5	\$8.122	\$3.003	37%
Respondent 6	\$15.908	\$11.260	71%
Respondent 7	\$22,000	\$22.000	100%
Respondent 8	\$3.256	\$3.256	100%
Respondent 9	\$1.483	\$1.483	100%
Respondent 10	\$23.809	\$6.755	28%
Respondent 11	\$27.989	\$22.200	79%
Respondent 12	\$1.220	\$0.537	44%
Respondent 13	\$0.623	\$0.623	100%
Respondent 14	\$11.139	\$9.433	85%
<i>Total respondents =14</i>	<i>\$171.550 B¹¹³</i>	<i>\$122.589 B</i>	
<i>Average</i>	<i>\$12.254 B</i>	<i>\$8.756 B</i>	<i>71%</i>

6.3 The Methodology for the Survey

AHP requires survey respondents to make pairwise comparisons of the components of the Value Tree and indicate the relative importance of each alternative in the pair. It is easier for people to make relative judgements than absolute judgements, so the respondents should not find it too difficult to do the comparisons. Pairs are generated for the factors on the upper level of the tree and for the sub-factors on the lower level of the tree. Each of the factors will be paired with the other factors, while the sub-factors for each factor will be paired with the other sub-factors for that factor. Covering all possible pairings allows AHP to confirm that the respondents make reliable and consistent responses (Forman and Selly 2001, p.45). This is due to the in-built redundancy that arises when

¹¹² The AUM have been collected from the websites of the property funds or the Property Investment Research (2015).

¹¹³ This does not include Respondent 2's AUM as this information is not publicly available and was not provided by the respondent.

respondents use pairwise comparisons to reveal which alternatives they prefer. Unfortunately, this means that the number of pairs that need to be judged will increase exponentially for every additional factor or sub-factor that is added to the Value Tree. In order to ensure that the number of pairs in the Value Tree was not excessive, the number of factors and sub-factors included was based on the ability for all the survey respondents to easily complete all the pairwise comparisons within thirty minutes. This meant that seven factors were included, resulting in twenty one pairs being created for the factors. The twenty two sub-factors spread across the seven factors created twenty five pairs. Table 6.3 summarise the total forty six pairs presented to the survey respondents.

Table 6.3 Pair-wise Comparisons from the Value Tree

FACTORS (<i>21 pairs</i>)	SUB-FACTORS (<i>25 pairs</i>)
F1 - Type of real estate vehicle	F1.1 - Direct property F1.2 - REITs F1.3 - Unlisted property fund (<i>3 pairs</i>)
F2 – Geographical location	F2.1 – CBD F2.2 – Non CBD F2.3 – International (<i>3 pairs</i>)
F3 – Property type	F3.1 – Industrial F3.2 – Office F3.3 – Retail F3.4 – Residential (<i>6 pairs</i>)
F4 – Strategic decision making	F4.1 – Return analysis F4.2 Risk analysis F4.3 – Risk adjusted analysis (<i>3 pairs</i>)
F5 – Investment style	F5.1 Core F5.2 Value-added F5.3 Opportunistic (<i>3 pairs</i>)
F6 – Selection of external fund manager	F6.1 – Understanding of client needs F6.2 – Local experience F6.3 – Organisational stability F6.4 – Philosophy and decision making (<i>6 pairs</i>)
F7 – Qualitative techniques	F7.1 – Personal judgement F7.2 – Industry peer comparison (<i>1 pair</i>)

The relative importance of each alternative in a pair will be determined using a nine point number scale, with number 5 being the upper limit and 1 the lower limit. If a respondent regards one alternative to have absolute importance over the other alternative,

they will give it a ranking of 5. On the other hand, they will give a ranking of 1 if they regard both alternatives to be of equal importance. An example of how one of the survey pairwise comparisons uses the nine point number scale is shown in Figure 6.2. The survey script is provided in Appendix 1 and lists all the survey pairwise comparisons.

Figure 6.2 Use of Nine-Point Scale in Survey Pair-Wise Comparison

<i>When investing in property which of the following is more important, the type of real estate vehicle or geographical location?</i>								
Type of real estate vehicle					Geographical location			
5	4	3	2	1	2	3	4	5
<i>Most important</i>			<i>Equal importance</i>			<i>Most important</i>		

The use of a nine point number scale is consistent with the recommendations by Saaty (1977, p.245) that, based on Miller’s (1956) findings, psychologically individuals find it difficult to simultaneously compare more than seven items (plus or minus two). The nine point number scale falls within this acceptable range. The scale must be able to reflect the different level of feelings that respondents have when comparing the alternatives in a pair (Saaty 1977, p. 246). It is vital for all the survey respondents to understand what each number on the scale represents. Otherwise, they could have different interpretations on what each number is reflecting. Consequently, at the start of the survey, definitions and explanations are provided to the survey respondents on what level of feeling each number in the scale reflects. Table 6.4 below provides descriptions of what each number in the scale from 1 to 5 represents.

Table 6.4 The Scale of the Relative Degree of Importance

Degree of importance	Relative judgemental preference of one alternative over another
1	Equal importance – The alternatives are regarded as being equally important.
2	Slight importance of one over the other - Judgement that one alternative is slightly favoured over the other alternative.
3	Moderate importance of one over the other - Judgement that one alternative is moderately favoured over the other alternative.
4	Strong importance of one over the other - Judgement that one alternative is favoured strongly over the other alternative.
5	Absolute importance of one over the other – Judgement favouring one alternative at the highest possible order of affirmation

AHP uses the three basic principles of “decomposition, comparative judgements, and hierarchical composition or synthesis of priorities” (Foreman and Selly 2001, p. 51). These principles require four steps to be used in the decision-making problem (Zahedi 1986, p. 96).

1. The decision hierarchy needs to be set up to identify what will be on each level of the hierarchy.
2. The input data needs to be collected by making pair-wise comparisons of the decision-making elements and creating a judgemental matrix from these comparisons.
3. Use the “eigenvalue” method to generate the relative weights of the decision-making elements from the matrices.
4. Construct ratings for the decision-making elements by aggregating their relative weights.

The application of each of these steps in this thesis will now be discussed.

6.3.1 Step 1: The Decision Hierarchy

The Value Tree shown in Figure 6.1 was constructed using information obtained from surveys analysed in the Literature Review in Chapter 5 and advice from two qualified academics. Property asset allocation by superannuation schemes is the decision goal at the top of the tree. The seven factors on the next level of the tree were chosen as they were noticeably different from each other and are major areas taken into account by managed funds when investing in property. On the next level of the tree, each factor is broken down into independent sub-factors that the respondent will take into account when making their decision on the factor.

6.3.2 Step 2: Input Data and Judgemental Matrix

The pairwise comparisons made by the survey respondents were collected between April 2015 and April 2016. They were all given a Participant Information Sheet that explained what was involved in the survey as well as Participant Consent Form which they signed before their survey interview took place. This is required by the Western Sydney University’s Ethics Committee when research is undertaken on human beings to meet the national ethical research guidelines (see Appendices 2 and 3). The survey questionnaires have been stored at a protected site and the data recorded on the university computer system with a hardcopy of the data produced. The privacy of respondents was maintained by not recording the name of the respondent on their completed survey. All data will be kept for the five year period required by Western Sydney University’s Ethics Committee.

The judgemental matrix for the pair-wise comparisons was created by assuming there were n factors being compared, $F_1 \dots F_n$, with the relative weight that reflects the priority (or significance) of one factor, F_i , with respect to another factor, F_j , being represented by w_{ij} . A square matrix can now be formed of the pairwise ratios (or comparisons) of these factors where the rows show the ratios of the weights of each factor with respect to the other factor. These weights are referred to as weights of importance and once they are calculated are typically normalised to add up to one. The square matrix $A = (w_{ij})$ of order n will have the following constraints $w_{ij} = 1/w_{ji}$, for $i \neq j$, and $w_{ii} = 1$, for i (Saaty and Vargas 2012, p. 26). This matrix can be written as equation (1).

$$A = \begin{pmatrix} \frac{w_1}{w_1} & \dots & \frac{w_1}{w_n} \\ \frac{w_2}{w_1} & \dots & \frac{w_2}{w_n} \\ \vdots & \ddots & \vdots \\ \frac{w_n}{w_1} & \dots & \frac{w_n}{w_n} \end{pmatrix} \quad (1)$$

6.3.3 Step 3: Determination of the Weightings

The eigenvalue method is applied to the judgemental matrix created in Step 2 to estimate the weightings for each of the factors and sub-factors in the Value Tree. ExpertChoice™ software was used to do the required calculations. If it is assumed that the priorities are known with respect to the weights, the vector of priorities can be derived from judgemental matrix using the eigenvalue formulation $Aw = nw$, with w being the vector of priorities of order n ¹¹⁴. This is shown in equation (2).

$$\begin{pmatrix} \frac{w_1}{w_1} & \dots & \frac{w_1}{w_n} \\ \frac{w_2}{w_1} & \dots & \frac{w_2}{w_n} \\ \vdots & \ddots & \vdots \\ \frac{w_n}{w_1} & \dots & \frac{w_n}{w_n} \end{pmatrix} \begin{pmatrix} w_1 \\ \vdots \\ w_n \end{pmatrix} = n \times \begin{pmatrix} w_1 \\ \vdots \\ w_n \end{pmatrix} \quad (2)$$

If w_{ij} represents the importance of factor i over factor j , and w_{jk} represents the importance of factor j over factor k , then the weights will be transitive if the importance of factor i over factor k equals $w_{ij}w_{jk}$ or $w_{ij}w_{jk} = w_{ik}$ for all i, j , and k . The relative importance of a pair of factors will be given the judgement that one factor is absolutely more important than the other factor, strongly more important, moderately more important, and so on. In this thesis, a number on a scale of 1 to 5 is allocated to each judgement of relative importance.

The matrix can exist if the weights can be calculated using an exact scale. Unfortunately, the condition $w_{ij}w_{jk} = w_{ik}$ may not hold for matrices reflecting human judgements. This is because human judgements are not always exact, so only estimates of w_i/w_j can be obtained. For example, a person may prefer F_1 to F_2 and F_2 to F_3 , but may prefer F_3 to F_1 . This means the judgements would not be consistent. To accommodate this inconsistency, the w vector of order n will now need to be derived so that $Aw = \lambda_{\max}w$ and $\lambda_{\max} \geq n$ where w is an eigenvector of order n and λ is an eigenvalue. A consistent matrix requires $\lambda_{\max} = n$, so any difference between λ and n indicates a level of inconsistency between the judgements. The ability for there to be non-consistent pairwise comparisons is a practical advantage of AHP. As long as there is a low level of inconsistency, then the original matrix, A , does not necessarily need to be perfectly consistent. A measure of inconsistency, known as the Consistency Ratio (CR), can be used to acknowledge that the weights are acceptable estimates. The CR requires a Consistency Index (CI) to be calculated as shown in equation (3).

$$CI = (\lambda_{\max} - n)/(n-1) \quad (3)$$

¹¹⁴ The priority vector is an eigenvector of the relative importance of all the criteria.

This formula is the variance of error that occurs when estimating w_{ij} (Saaty and Vargas 2012, p. 8). The CI will then be compared with an average consistency random index (RI) calculated from a large number of randomly generated reciprocal matrices of the same order n as the CI. In equation (4), the calculation of the Consistency Ratio (CR) involves dividing CI by RI.

$$CR = CI/RI \quad (4)$$

Saaty calculated average consistency RI for order size of 2 to 14 and made this publicly available¹¹⁵. These are shown in the Table 6.5 below:

Table 6.5 Average Consistency Random Index (RI)

n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RI	0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49	1.51	1.48	1.56	1.57	1.59

Saaty calculated the RI's from 500 randomly generated reciprocal matrices using the scale of 1/9, 1/8, ..., 1, ..., 8, 9 (Saaty 1987, p.171). The weights will be consistent when the CR = 0. However, if some inconsistency is not allowed, then it would prevent any new knowledge influencing the order of preferences from being accepted. Consequently, Saaty (1987) acknowledged that inconsistent rankings by respondents should be allowed as long as the inconsistency is not significant. A decision maker's judgements will be more consistent the smaller the CR. Saaty proposed that a CR of 10% or less indicates the weights are likely to be non-random and hence reliable as they will be consistent (Saaty 1987, p. 172). The more significant the inconsistency, the closer the rankings would be to being random and less trustworthy. Saaty (1980, p. 13) states that another feature that will ensure the weights on each of the factors are more consistent is to limit their number to seven plus or minus two. This is because if the number of factors is large than the relative priorities would be smaller and there is a greater probability that error will misrepresent the priorities. This uses the same logic that Saaty adopts when setting the maximum scale of relative degree of importance. That is the finding by Millar (1956) that individuals are less confused when they only have to consider a small number of items. In this thesis, the recommendation of having no more than seven factors has been adopted.

6.3.4 Step 4: Analysis of Aggregate Results

The analysis of results for the respondents is undertaken by aggregating their responses on the relative importance of each pairwise comparison. This will reduce any bias that can occur when the judgements of only one of the respondents is considered. There are several methods available to aggregate results, such as using the median response, arithmetic mean and geometric mean. Use of the median response would only be useful if

¹¹⁵ There has been criticism of the reliability of RI when the order is greater than 14 and the same methodology used by Saaty is adopted. This criticism does not affect this thesis as the order size in the thesis is less than 14.

there were very few outlier responses. This was not the case in the responses made by the survey respondents. Saaty (2008, p. 95) recommends the use of geometric averaging of group responses. However, the aggregates were very similar under both arithmetic averaging and geometric averaging. This may be because the number of respondents in the group was not small. Consequently, the arithmetic average weight for each factor and sub-factor was calculated from the respondent's weights on each factor and sub-factor.

The arithmetic averages of the weights are then used to rank how important the factors and sub-factors are in decision-making. The higher the average weight, the more important the factor or sub-factor will be in the decision-making process. The ranking of the seven factors could easily be done by simply comparing the average weights. However, this was not possible for the sub-factors as their AHP weight was for their factor and not the decision goal. For example, the weights of the sub-factors for each factor will add up to 100%. To generate global weights for the sub-factors that add up to 100%, their average weight is multiplied by the average weight of their factor. Given the use of the Expert Choice™ software for this AHP analysis, further mathematical details of the AHP process are not provided here.

6.4 Software Used for the Survey Data Analysis

Expert Choice™ was used to obtain the results for the survey responses. While it is possible to use EXCEL spreadsheets to do the calculations, ExpertChoice™ significantly reduces the time involved in doing these calculations. The software is used globally by companies, governments and academics to undertake multi-criteria decision-making. ExpertChoice™ generated the weighting by each respondent on the factors and groups of sub-factors, as well as the consistency ratio for the factors and groups of sub-factors. The aggregation of the results was completed using EXCEL spreadsheets.

6.5 Inconsistency in Survey Responses

AHP does not require people to always be consistent with their responses. Human nature can make it difficult for respondents to be entirely consistent when ranking the importance of alternative factors or sub-factors using pairwise comparisons. For example, the seven factors in the AHP survey required twenty one pairs to be created. The ability to be perfectly consistent in the ranking of one factor or one sub-factor in all the pairs it is included in may not always occur. Saaty (1987, p. 172) recommends the rankings can be regarded as being consistent and not random if the Consistency Ratio (CR) is less than 10%. However, Saaty's suggested 10% CR threshold is for AHP research looking to generate a specific outcome or conclusion for an individual decision-maker or group of decision-makers. Some examples of using AHP to do this are when determining student admissions at University; selection of research projects to invest in; or the hiring of new employees (Saaty 2008, p. 97). This thesis is not using AHP to do this. Instead, AHP is being used to examine the importance of factors and sub-factors rather than determine the best factor or sub-factor. Consequently, the data being generated is descriptive rather than definitive.

With descriptive data, inconsistencies can be expected. Consequently, a CR higher than 10% can still be regarded as supporting consistency if the reasons behind this are acceptable.

Foreman and Selly (2001, pp. 47-49) argue that clerical error, a lack of information, a lack of concentration, an inadequate model, and real world inconsistencies are reasons why the CR may be higher than 10%. They suggested ways to correct for inconsistencies caused by these five reasons. Clerical error, the first reason, occurs when wrong values are entered. In this thesis, the input of all values was checked several times to ensure this did not occur. The second reason, lack of information, is when respondents do not have sufficient information about the factors and sub-factors that they are priority ranking. Before and during each survey, the definition of each factor and sub-factor were explained to the respondent. The respondents stated they were very familiar with all the factors and sub-factors, so lack of information cannot be regarded to be a problem. The third reason is lack of concentration which can occur when the respondent becomes tired whilst making priority judgements on the pairwise comparisons. This did not occur during the surveys, as all the respondents completed the pairwise comparisons in less than thirty minutes. In addition, they did not show any lack of interest when deciding on which alternative in each pair they preferred. An inadequate model structure, which is the fourth reason, may be regarded as occurring because of the hierarchical structure of the AHP. This hierarchical structure requires all factors on any level to be comparable with other factors at that level. Allowing this comparison to occur on a scale range, such as between 1 and 5 as is done in this thesis, can see respondents making extreme judgements in the pairwise comparisons. For example, respondents may always select a ranking of 5 rather than a slightly lower ranking of 4 or 3. Foreman and Selly (2001, p. 48) argue that this could generate a CR greater than 10%, but is an acceptable reason as it will not reflect that the priorities of the respondents are inconsistent¹¹⁶. Foreman and Selly (2001) also argue the final reason, real world inconsistencies, is also an acceptable reason for having a CR greater than 10%. Human behaviour may prevent people always providing consistent judgements based on how they view different pairwise combinations. If this is the case, then Foreman and Selly (2001) argue that it is more important to be accurate than consistent. A threshold of 10% for CR could eliminate judgements that reveal real world inconsistencies.

During the face-to-face interviews, the researcher observed that some of the respondents gave ranking priorities for some factor pairs that would be regarded as being inconsistent. They did not do this with their ranking priorities for the sub-factor pairs. At that stage, the researcher could have asked these respondents to reconsider their judgements viewed by the researcher as being inconsistent. However, that was seen as not appropriate as it could mean the researcher was influencing the respondents judgements. In addition, before and during the interviews, the respondents had been taken through the definitions of all the factors and sub-factors and all had indicated that they were

¹¹⁶ Foreman and Sully (2001, p. 48) provide an example when a scale range of 1 to 9 is used. They state that if say A is ranked 9 over B and B is ranked 9 over C then the second order dominance of A over C will be 81 times.

comfortable with the definitions. After they ranked each pair of factors and sub-factors, the researcher verbally repeated the respondent's judgement to them and asked them to confirm it was correct. It did not appear as though the respondents were confused with what the factors and sub-factors covered. Consequently, only the raw responses were recorded and the respondents were not asked to amend their responses even though this could lead to a high CR.

6.6 Tests of Statistical Significance

Several statistical tests will be undertaken to analyse the weightings of the respondents. Analysis of variance (ANOVA) and the least significant difference test (LSD) are used to test the similarity of the responses made by sub-groups of the respondents. Spearman rank correlation coefficients will then be calculated to see whether each factor or sub-factor in a pair moves independently of the other factor or sub-factor.

6.6.1 Analysis of Variance (ANOVA)

Analysis of variance (ANOVA) will be undertaken to examine whether the responses by the respondents are similar. ANOVA uses variances to test if the means of three or more variables are equal (Seltman 2015, p.171). One-way ANOVA tests whether there is a significant difference between a dependant variable and an independent variable. In this thesis, one-way ANOVA will be used to test whether the means of the sub-groups are equal. The test null hypothesis will be whether the means of the factor or sub-factor are identical for the sub-groups. The alternative hypothesis is that at least one of the means is different. The dependent variable will be the factor or sub-factor, while the independent variables will be the sub-groups. Two-way ANOVA is used when there are two or more independent variables and multiple observations exist for each independent variable. It tests whether the value of one of the independent variables depends on the value of the other independent variable (Seltman 2015, p.268). The independent variables will be the individual superannuation schemes and the factors or sub-factors. For the individual schemes, two-way ANOVA without replication will be applied separately to the overall sample and each of the sub-groups. Two-way ANOVA without replication has two test null hypotheses. In this thesis, the first will be whether the means of the superannuation schemes are identical and the second will be whether the means of the factors or sub-factors are identical. The alternative hypotheses will be that the means are different. One-way ANOVA and two-way ANOVA tests will also be undertaken on the property funds and each of the property fund sub-groups.

The total variation of actual observations from the sample mean is made up of the sum of squares of the differences of means for each group. It is referred to as the total sum of squares (TSS).

$$TSS = \sum (x_{ij} - X_S)^2$$

x_{ij} = observation

X_S = mean of the sample

The total variation is made up of the between group variation and the within group variation. If the between group variation is larger than the within group variation then the means of the groups will not be the same. One-way ANOVA compares the between group variation with the within group variation. The between group variation is the interaction between the groups and is measured by the between group sum of squares (SSB):

$$SSB = \sum n_j (X_j - X_S)^2$$

n_j = sample size of group j

X_j = mean of group j

The within group variation is where each group is considered independently and is the sum of squares within groups (SSW):

$$SSW = \sum \sum (x_{ij} - X_j)^2$$

$$TSS = SSB + SSW$$

The variance for the interaction between the groups is measured by dividing SSB by its degrees of freedom $k-1$ where k is the number of samples. It is referred to as the mean square between the groups (MSB). The variance for the differences within the individual groups is calculated by dividing SSW by the sum of individual degrees of freedom $N-k$ where N is the total sample size. The variance is known as the mean square error within groups (MSW).

An F-test will be then used to test for differences. An *F-test* can be undertaken by dividing the MSB by the MSW generated by one-way ANOVA.

$$F = \frac{MSB}{MSW}$$

This will test whether there is a difference between the between group variance and within group variance. The null hypothesis for the test will be that the means for all the groups are the same. The alternative hypothesis will be that the group's means are not the same. The null hypothesis will be rejected at a 5% probability if the *F variable* is greater than the critical *F-value* with $k-1$ degrees of freedom in the numerator and $N-k$ degrees of freedom in the denominator. Rejection of the null hypothesis implies the mean of at least one of the groups is different.

6.6.2 Least Significant Difference (LSD) Test

While analysis of variance (ANOVA) can indicate that the mean of at least one group is different from the means of the other groups, it does not identify which group has the different mean (Williams and Abdi 2010). To identify this group, a pairwise comparison of the means of all the groups can be used. The least significant difference (LSD) test allows this pairwise comparison to be made when the ANOVA's *F-test* is significant. LSD computes the smallest significant difference that can occur between two means using a *t-test*. If this difference is smaller than the actual difference between the two means, the difference for this pair is regarded as being significant. Assuming there are *A* groups with a given group denoted *a* and the total sample size is *N*. When the null hypothesis is true, the *t-statistic* for evaluating the difference between the means of two groups will be:

$$t = \frac{M_{a1} - M_{a2}}{\sqrt{MSW\left(\frac{1}{n_{a1}} + \frac{1}{n_{a2}}\right)}}$$

MSW = mean square error within the group.

M_a = mean of the *a*th group.

n_a = number of observations of the *a*th group.

If the *t-statistic* is larger than the critical *t-value* at a given α level in the student's *t*-distribution, then it will be significant. The critical *t-value* can be denoted $t_{\alpha,DFW}$ where the degrees of freedom (DFW) will be *N-A*. This equation can be rewritten to represent the LSD, where the LSD measures the smallest difference between two means. A significant difference will exist between the two means when this difference is larger than the LSD:

$$|M_{a1} - M_{a2}| > LSD = t_{v,\alpha} \sqrt{MSW\left(\frac{1}{n_{a1}} + \frac{1}{n_{a2}}\right)}$$

This test is undertaken on all the pairwise comparisons of the group means. The LSD is only undertaken when ANOVA reveals a significant result and so rejects the null hypothesis.

6.6.3 Correlation Analysis

The final statistical analysis to be undertaken on the survey responses will be to test each pair of factors or sub-factors for correlation. This detects if any of these pairs move independently or not. While it will not identify if one factor or sub-factor causes the other factor or sub-factor in the pair to move or not move, it reveals if any relationships exist between the different pairs of factors or sub-factors.

As the data is ordinal rather than cardinal, the Spearman's rank correlation coefficient, r_s , is used to measure correlation. The alternative correlation measure, the Pearson's correlation coefficient, is not used as it is more suitable when there is cardinal

data that is linearly related (Hauke and Kossowski, 2011 p. 88). A monotonic relationship can be evident between the factor and sub-factor pairs¹¹⁷. The Spearman's rank correlation coefficient, r_s , is measured using:

$$r_s = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$

d_i = difference in paired ranks.

n = number of ranked pairs.

When there are tied ranks the following formula is used:

$$r_s = \frac{\sum_i (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_i (x_i - \bar{x})^2 \sum_i (y_i - \bar{y})^2}}$$

To calculate the difference in paired ranks, d_i , the data for each factor or sub-factor in the pair is ranked with the largest number being given rank 1. If numbers are the same, they will be given the mean rank. The d_i is then calculated between the numbers that have the same rank. The Spearman's rank correlation coefficient will lie between -1 and 1 ($-1 \leq r \leq 1$). The closer r_s is to -1 or 1 the stronger the relationship will be. A perfect negative correlation occurs when r_s equals -1 and when r_s equals +1 there will be perfect positive correlation. If r_s equals zero there will be no relationship, so the rank of one factor or sub-factor will not vary with the rank of the other factor or sub-factor. Table 6.6 summarises the relative strength of the absolute value of the correlation coefficients.

Table 6.6 Relative Strength of Absolute Value of Correlation Coefficients

Absolute value of correlation coefficient	Strength
$r = 1$	Perfect correlation
$0.8 \leq r < 1$	Very strong correlation
$0.6 \leq r < 0.8$	Strong correlation
$0.4 \leq r < 0.6$	Moderate correlation
$0.2 \leq r < 0.4$	Weak correlation
$0 < r < 0.2$	Very weak correlation
$r = 0$	No correlation

Source: Hauke and Kossowski (2011)

To test for the significance of the correlation, a 95% Spearman's *t-statistic* test with $n-2$ degrees of freedom was undertaken on the null hypothesis. The null hypothesis being that there is no correlation ($H_0: r_s = 0$). If the absolute value of r_s exceeds the critical *t-value* in the Spearman's *t-statistics* ranked correlation table, then the null hypothesis will be rejected.

¹¹⁷ A monotonic relationship occurs when one of the factors (sub-factors) in the pair increases the other factor (sub-factor) keeps increasing or keeps decreasing.

6.7 Survey Process

The surveys of the twenty superannuation schemes were completed between April 2015 and April 2016 with the majority being conducted in 2016. A face-to-face interview was used to complete all but one of the surveys as this was the preferred method. A telephone interview had to be used for one survey due to difficulties encountered in arranging a face-to-face interview. Face-to-face interviews were regarded as being the best way to undertake the AHP research, as they would ensure respondent's would be more likely to correctly respond to the questions and that there would be a high response rate. The fourteen property fund managers were all surveyed by face-to-face interviews between March and April 2016.

There are several methods that researchers can use when doing surveys. Online surveys typically involve respondents being given URL access to a survey that they self administer by typing responses within a particular time period. Paper based surveys can involve surveys being posted out to respondents to complete or be completed face-to-face. The response rate to paper based surveys is generally considerably higher than the response rate for online surveys (Nulty 2008, pp. 302-303). In terms of paper based surveys, the response rate to postal surveys is less than the response rate to face-to-face surveys (Bowling 2005, p. 285). This is expected as face-to-face surveys are completed during a pre-set allocated time, while people receiving a postal survey can choose whether or not they want to complete the survey and return a completed survey to researcher. The 91% response rate, with twenty of the twenty two agreeing to a face-to-face interview, obtained by this thesis reflects this higher response rate to face-to-face surveys. Reasons behind the high response rate could be the guarantee that respondents were given that their responses would be confidential, that it was a non-profit University research survey, and that they were contacted several times. The first two reasons arose because each potential respondent was posted a letter from the Western Sydney University that stated that it was non-profit research and that their responses would be confidential according to the guidelines of the Western Sydney University Human Research Ethics Committee. The last reason is because while close to one third of the potential respondents replied within seven days of receiving their letter, the others were sent reminder emails several times before being contacted by telephone to seek their agreement to be interviewed.

Face-to-face surveys can take place in a group environment or as an interview. There are several benefits of face-to-face interviews over interviewing in a group environment. It is easier for the researcher to clearly explain the purpose of the survey to a single respondent before they commence responding to the questions. Respondents are also able to ask the researcher to define and clarify terms whilst they are completing the survey (Bowling 2005, p. 282). In addition, the researcher can monitor whether all questions are responded to and that the responses are correctly recorded.

As it is highly unlikely that most people have ever been asked to compare different alternatives, which is required by the AHP technique, the face-to-face interview method will ensure they understand how to respond to pairwise comparisons. Consequently, the face-to-face interview method is used in this thesis. During the face-to-face interview, the respondents had the survey questionnaire in front of them, as well as a sheet with the definitions of the factors and sub-factors written on it. This would not have been possible if self-administered postal or online surveys were used. In telephone interviews, while the definition of the factors and sub-factors can be discussed, it is difficult to know whether the respondent clearly understands what they are being asked to do as non-verbal behaviour cannot be observed. This was experienced during the one telephone interview that took place, as the researcher had to repeat questions several times, as well as the definitions of the factors and sub-factors.

The use of face-to-face interviews meant that the survey time frame was longer than initially expected, because the majority of Australian superannuation schemes were located in another state. Consequently, interstate travel was required, where dates had to be organised several weeks in advance so that several schemes could be interviewed on the same day. As required by the ethics approvals process for the research, all survey respondents were sent a Participant Information Sheet on the survey and a Participant Consent Form when they agreed to participate in the interview. Copies of these are provided in Appendices 2 and 3 of this thesis. In order to ensure the survey respondents provided unbiased and truthful responses to the survey, both the Participant Information Sheet and Participant Consent Form guaranteed that the record of all the responses would not reveal their identity. In addition, they were informed that the survey was only able to take place after a detailed submission had been made to the Western Sydney University Human Research Ethics Committee and that the Committee had granted their approval for the survey to take place. Consequently, the survey was being undertaken according to the privacy guidelines imposed by the Western Sydney University Human Research Ethics Committee

At the start of each interview, the background, purpose of the survey and AHP technique were discussed by the researcher and respondent. The terminology used in each survey question was explained, so that the respondent understood what each factor and sub-factor represented. The interviews generally took between 30 minutes to an hour to complete, with either the respondents entering their responses by hand on the survey paper or the researcher doing this for them if the respondent preferred this to take place. The length of the interview depended on how much conversation took place during the survey. These conversations proved to be extremely valuable as they provided the researcher with information on what the respondents viewed was the best approach for their fund in terms of property investment and any restrictions they experienced in their decision-making. Some respondents also discussed events that had affected property investment by superannuation schemes over the recent years. The hard copies of the survey

along with notes made on the conversations that took place were entered in the researchers laptop on the day of the interview.

The personal nature of a face-to-face interview means there is a significant degree of conversation occurring between the researcher and respondent. This can lead to interviewer bias occurring where the interviewer influences the respondents' answers (Bowling, 2005 p. 287). However, there were three ways this bias was avoided in the interviews. Firstly, the interview did not involve open-ended questions. Instead, the researcher was only recording the degree of importance that the respondents placed on a pair of factors or sub-factors. Secondly, the researcher only read the questions as they were worded. Neutral explanations were given whenever the respondents asked about the meanings of any of the factors and sub-factors. Thirdly, the researcher only gave neutral feedback to comments made by the respondents during the interview. Several of the respondents stated after they answered some questions that their response might not be what the researcher was looking for. Whenever this occurred, the researcher stated that there were no expectations about how the interviewees were going to respond. Comments arising from these interviews have been included as quotes in Chapters 7 and 8 to add further richness to the survey respondents' depth of understanding of the actual issues in the property investment process.

Chapters 7 and 8 will highlight the AHP analysis for the superannuation schemes and property funds in identifying the importance of critical factors in the property investment decision-making process.

CHAPTER 7

ANALYSIS OF FACTORS AFFECTING PROPERTY INVESTMENT DECISION-MAKING BY SUPERANNUATION SCHEMES

Chapter 7 undertakes an analysis of the responses to the AHP survey by the superannuation schemes. These quantitative results are examined in order to identify the factors and sub-factors that the respondents regard as significant when making decisions on property investment. An analysis is undertaken of the sub-groups, the small, medium and large superannuation schemes within the sample, to see whether there are significant differences between the sub-groups.

7.1 Consistency

During the interviews, none of the twenty respondents from the superannuation schemes provided negative feedback on the relevance of any of the factors and sub-factors. Consequently, the factors and sub-factors can be regarded as being relevant in decision-making on property investment. However, AHP generates weights reflecting the importance of the factors over each other. This requires the degree of importance of each pair-wise comparison of factors to be transitive and so allow consistency. As explained in the methodology in Chapter 6, human decision-makers do not always make consistent judgements. If the responses by any of the superannuation funds are not consistent, they cannot be included in the analysis of the responses. This is because inconsistent judgements decrease the accuracy of the mean weightings and rankings of the factors and sub-factors.

The CR measure for the factor weights for each of the twenty superannuation schemes respondents are provided in Table 7.1 below. According to Saaty, a CR of 10% or less would be sufficient for the estimated weights to be consistent (Saaty 1987, p.172).

Table 7.1 Consistency Ratios for the Twenty Superannuation Schemes

	1	2	3	4	5	6	7	8	9	10
CR	0.11	0.06	0.23	0.11	0.06	0.08	0.1	0.28	0.08	0.09
Size	S	M	M	M	L	S	S	S	M	L
	11	12	13	14	15	16	17	18	19	20
CR	0.07	0.3	0.22	0.19	0.09	0.08	0.17	0.07	0.05	0.13
Size	L	S	M	S	S	S	S	M	M	M

Whilst completing the survey interviews, it became evident that the relative importance of some of the factors and sub-factors to the larger superannuation schemes were inconsistent with their relative importance to the smaller superannuation schemes. Consequently, the superannuation funds were put into three sub-groups based on their reliance on using asset consultants and size. The small superannuation schemes were those that only took the advice of

asset consultants. They held property AUM of less than \$1 billion. The property AUM for the medium superannuation funds was between \$1 billion and \$7 billion. The large superannuation schemes rarely used asset consultants and had property AUM of more than \$7 billion. In Table 7.1, each superannuation scheme is labelled with a number. The size of each superannuation scheme is recognised by labelling it as small (S), medium (M) or large (L). This saw nine of the twenty superannuation schemes being placed in the small sub-group, eight in the medium sub-group, and three in the large sub-group.

Nine of the twenty CRs were greater than 10%. Four of these were greater than 20%, two of which were from the nine small superannuation schemes and two from the eight medium superannuation schemes. One suggested way to improve the CRs is to redo the surveys and make sure that the respondents have a better understanding of the pair-wise comparisons. However, as explained in Chapter 6, it was felt that this would be forcing the respondents to provide a response that is predetermined. At the interviews, the definitions of each of the factors and sub-factors were clearly explained to the respondents. Any intervention in how they responded was considered to be a violation of the personal judgement of the respondent. Consequently, in this study, only the original responses will be used.

After consideration of various arguments on what should be an acceptable CR, it was decided to keep the factor weightings of the respondents from all twenty superannuation schemes. The average CR of the twenty superannuation schemes is 12.85% and whilst slightly above the 10% threshold suggested by Saaty, it is still relatively low. The highest CR was 30% for one of the small superannuation schemes, while another small and two medium superannuation schemes had CRs between 20% and 30%. It was felt that removing these four superannuation schemes from the study would limit the amount of new information that could be collected on all the factors and sub-factors. In addition, when the analysis was undertaken without including the responses by these four superannuation schemes, there was no change in the preferences that were generated.

Most of the sub-factors CR for each factor were under 10% for each respondent¹¹⁸. In addition, a CR of close to 0% exists for the majority of sub-factors. This could be expected as the number of sub-factors for each factor never exceeds four. The smaller the number of sub-factors that the respondents have to consider, the less likely they are to be inconsistent and so are more likely to make consistent choices. Consequently, the judgements for all twenty respondents on the sub-factors were used.

7.2 Survey Results for the Whole Sample of Superannuation Schemes

The survey responses by the twenty superannuation schemes will now be analysed. This will be followed by a comparison of the responses by the sub-groups of the whole sample, which

¹¹⁸ For each respondent, there are 7 sub-factor CRs because each of the 7 factors has sub-factors. As there are twenty respondents, the total number of CRs for the sub-factors is 140. These results are available on request.

are the small, medium and large superannuation schemes. The whole sample of twenty respondents ranked “*Strategic Decision Making*” as being significantly more important than the other factors. The importance of “*Strategic Decision Making*” was supported by the respondents’ rankings of the sub-factors. Two of the “*Strategic Decision Making*” sub-factors, “*Risk Adjusted Analysis*” and “*Return Analysis*”, were ranked by the respondents, along with “*Core*”, as being significantly more important than the other sub-factors. Some of the respondents commented that their superannuation schemes’ mandate prevented them from being very flexible in their decision-making on three of the seven factors; these were “*Type of Real Estate*”, “*Property Type*” and “*Investment Style*”. This comment can be used to explain the weightings and rankings for these factors.

7.2.1 Factor Weightings

The mean weightings and rankings for the seven factors and twenty two sub-factors made by the twenty survey respondents are provided in Table 7.2. The highest ranked factor is “*Strategic Decision Making*” (24.43%) and its weight is at least 8% higher than the other six factors. The next three ranked factors, “*Selection of External Fund Manager*” (16.55%), “*Investment Style*” (16.52%) and “*Property Type*” (14.22%), have weightings within 2.33% of each other and close to two thirds of the “*Strategic Decision Making*” weight. The remaining three factors, “*Type of Real Estate Vehicle*” (9.89%), “*Geographical Location*” (9.62%) and “*Qualitative Techniques*” (8.98%), have weightings that are just over half the weightings of the previous three factors and nearly two fifths of “*Strategic Decision Making’s*” weight. These AHP results can be separated into three levels of importance based on the distribution of factor weightings and rankings:

Level 1 - Most Important (>17%) - *Strategic Decision Making* (24.43%);

Level 2 - Moderate Importance (<17% and >10%) - *Selection of External Fund Manager* (16.55%), *Investment Style* (16.52%) and *Property Type* (14.22%);

Level 3 – Minor Importance (<10%) - *Type of Real Estate Vehicle* (9.89%), *Geographical Location* (9.62%) and *Qualitative Techniques* (8.98%).

Whilst these break-points for the three levels are arbitrary, they provide a natural break for these levels.

Table 7.2 AHP Weightings for Factors and Sub-factors: 20 Superannuation Schemes

	Weight (%)	Rank
<i>Factors</i>		
Strategic Decision Making	24.43	1
Selection of External Fund Manager	16.55	2
Investment Style	16.52	3
Property Type	14.22	4
Type of Real Estate Vehicle	9.89	5
Geographical Location	9.62	6
Qualitative Techniques	8.98	7
<i>Sub-factors</i>		
Core	9.77	1
Risk Adjusted Analysis	9.45	2
Return Analysis	8.68	3
Personal Judgement	6.62	4
Risk Analysis	6.30	5
Investment Philosophy	5.79	6
Retail	5.53	7
CBD	4.86	8
Office	4.67	9
Unlisted Property Fund	4.52	10
Organisational Stability	4.44	11
Local Experience	4.42	12
Value-added	4.11	13
Direct Property	2.86	14
Opportunistic	2.65	15
Industrial	2.53	16
International	2.52	17
Industry Peer Comparison	2.36	18
REITs	2.31	19
Non-CBD	2.25	20
Client needs	1.90	21
Residential	1.50	22

The ranking of “*Strategic Decision Making*” as being considerably more important than the other factors reflects the fundamental need for fund managers to invest in the assets that perform the best. As reported in the Annual Reports of the surveyed superannuation schemes, their intention is to ensure their members enjoy financial security when they retire. To do this, one of their major investment objectives is to maximise long-term investment returns without being exposed to inappropriate levels of risk. Their approach to “*Strategic Decision Making*” will ensure this investment objective is met. The finding that the “*Strategic Decision Making*” weighting is close to 8% more than one of the moderately important factors, “*Investment Style*”, is interesting. This is because during most of the interviews, the respondents commented that

“Strategic Decision Making” and *“Investment Style”* were two factors that they regarded as being related. However, their respective weights do not reflect this closeness.

The three factors regarded as being of Moderate Importance, *“Selection of External Fund Manager”*, *“Investment Style”* and *“Property Type”*, have similar weightings. For *“Investment Style”* and *“Property Type”*, comments made during the interviews might explain their similar weights. Several of the respondents commented that their scheme’s mandate controlled their decision-making on both these factors. The mandates specified that they only invest in certain property types of a particular investment style. One respondent stated

“...they have a well-defined mandate on property type and investment style”.

While a relationship appears to exist between *“Investment Style”* and *“Property Type”*, they do not seem to be related to *“Selection of External Fund Manager”*. It could be argued that *“Selection of External Fund Manager”* could be based on the fund manager’s expertise in investing in property types that are consistent with the mandated investment style. However, during the interviews, none of the respondents talked about *“Selection of External Fund Manager”* being based on *“Investment Style”* or *“Property Type”*. Instead, they simply stated they used external fund managers and their Annual Reports list the external fund managers they use. Comments during the interviews imply external fund managers may have a closer relationship with the medium sized superannuation schemes than the small and large superannuation schemes. While respondents from both the small and medium superannuation schemes commented that they mainly invested in property through external fund managers, the medium superannuation schemes selected the external fund managers that they regarded as being able to provide them with the best property investments. The small superannuation schemes did not have this freedom. Two of these smaller schemes commented that their Board required them to invest in the property investments recommended to them by asset consultants chosen by the Board. So they had very little control over the external fund managers they used. One stated that:

“...they outsource their decision-making to the asset consultant” and that they “take the investment choices provided by the asset consultant to their board for approval”.

In contrast, respondents from the larger superannuation schemes commented that the majority of their property investment decisions were made in-house by a team of internal investment managers and their use of specialist external fund managers was minimal. One of these respondents commented that whilst they had a long-term approach to property investment as they were a superannuation scheme, they did take advantage of business cycles. Consequently, they would sell property when the opportunity arose to make a higher return on their property portfolio. They argued that Australian external fund managers were less likely to sell property, as it would reduce their commissions. This sees many of the large superannuation schemes favouring direct property over using property funds to increase their level of control.

The three factors that have a Minor Importance, “*Type of Real Estate Vehicle*” (9.89%), “*Geographical Location*” (9.62%) and “*Qualitative Technique*” (8.98%), have substantially lower weightings than the other four factors. The majority of respondents commented that the “*Type of Real Estate*” they could invest in, like the Moderate Importance factors “*Investment Style*” and “*Property Type*”, was specified in their mandates. However, “*Type of Real Estate*” is only regarded as being of Minor Importance, indicating the two other mandated factors have a bigger impact on the decision-making. “*Qualitative Techniques*” is the lowest ranked factor. It covers the subjective techniques used when investing in property and is typically used to select between alternative investments after quantitative analysis is undertaken. The low weighting on “*Qualitative Techniques*” reflects the greater importance of quantitative analysis.

7.2.2 Sub-factor Weightings

The twenty two sub-factor weightings in Table 7.2 have a smaller range than the seven factor weightings, which is to be expected as there is considerably more of them. However, the smallest sub-factor weight (1.5%) was less than one fifth of the highest sub-factor weight (9.77%), which is a bigger difference than the range between the smallest and highest factor weightings. Three levels of sub-factor importance can be established from the AHP results based on the distribution of sub-factor rankings and weights:

Level 1 - Most Important (>7%) – *Core* (9.77%), *Risk Adjusted Analysis* (9.45%), *Return Analysis* (8.68%);

Level 2 - Moderate Importance (<7% and >4%) – *Personal Judgement* (6.62%), *Risk Analysis* (6.30%), *Investment Philosophy* (5.79%), *Retail* (5.53%), *CBD* (4.86%), *Office* (4.67%), *Unlisted Property Fund* (4.52%), *Organisational Stability* (4.44%), *Local Experience* (4.42%), *Value-added* (4.11%)

Level 3 – Minor Importance (<4%) – *Direct property* (2.86%), *Opportunistic* (2.65%), *Industrial* (2.53%), *International* (2.52%), *Industry Peer comparison* (2.36%), *REITs* (2.31%), *Non-CBD* (2.25%), *Client needs* (1.90%), *Residential* (1.50%)

The Most Important sub-factors are sub-factors of the factors ranked number one and three, “*Strategic Decision Making*” and “*Investment Style*”, respectively. There is only 1.09% difference between these sub-factors, “*Core*”, “*Risk Adjusted Analysis*” and “*Return Analysis*”. “*Core*” has the highest weight (9.77%) and is a sub-factor of the factor “*Investment Style*”. This is consistent with the Annual Reports of all twenty surveyed superannuation schemes reporting that they currently mainly invest in core property. Of the three “*Investment Style*” sub-factors, the weighting on “*Core*” is more than double that of “*Value-added*” and nearly four times greater than that of “*Opportunistic*”. During the interviews, several of the respondents commented that since the Global Financial Crisis, they have only invested in core property. A respondent from one of the larger superannuation schemes stated:

“...that it was preferable to invest in core, as value-added and opportunistic investments required the use of leverage. This increases the risk exposure of the property investment.”

The other Most Important sub-factors, *“Risk Adjusted Analysis”* (9.45%) and *“Return Analysis”* (8.68%), are sub-factors of the Most Important factor, *“Strategic Decision Making”*. The slightly higher weighting on *“Risk Adjusted Analysis”* is consistent with the basic investment criteria that return and risk of investments cannot be considered in isolation of each other (Markowitz 1959). However, only one of the respondents acknowledged that they might use one of the risk adjusted measures, Sharpe Ratio, Treynor ratio and Sortino ratio, listed in the definition section in the survey. These measures require the use of statistical calculations, such as standard deviation, which require large time series data sets. Several of the respondents commented that most types of property were infrequently traded and property had a heterogeneous nature. Consequently, it was difficult to gather a large enough data set of property value observations needed to generate these statistical measures. The respondents did not reveal what other types of risk adjusted measures they used. The other *“Strategic Decision Making”* sub-factor, *“Risk Analysis”* (6.30%), falls in the Moderate Importance level. The greater importance of *“Return Analysis”* over *“Risk Analysis”* could be due to the need to ensure that investments generate strong positive returns. In addition, during the interviews, the majority of respondents commented that it was a lot easier to measure the return than the riskiness of alternative property investments. Two of the respondents said they used the absolute return approach with one of them stating that:

“...they focus on absolute returns as the better measure of performance”.

The other stated that:

“...it is very difficult to measure risk” and

“...buying property is based on the return being good in the future”.

The difficulty in measuring property risk meant they chose not to use risk analysis. However, most of the respondents said they did use risk analysis, with sensitivity and scenario risk analysis being the preferred measures of risk. Another respondent stated that they:

“...regarded the major risk of investing in property was the ability to keep tenants in the buildings”.

The ten sub-factors of Moderate Importance had weightings between 4% and 7%. *“Personal Judgement”*, one of the two *“Qualitative Technique”* sub-factors, has the highest weighting at 6.62%. It is roughly three times more highly weighted than the other *“Qualitative Technique”* sub-factor, *“Industry Peer Comparison”*, which is in the Minor Importance category. All but one of the respondents ranked *“Personal Judgement”* as more important than *“Industry Peer Comparison”*. One respondent stated that *“Personal Judgement”* was essential as they:

“...don’t want to chase the herd, they want to lead it”.

Other respondents said “*Personal Judgement*” was needed so that they could outperform other superannuation schemes. The respondent that ranked “*Industry Comparison*” ahead of “*Personal Judgement*” stated that:

“...members would always prefer to contribute to the superannuation scheme that generated the highest return”.

Another respondent commented that often it can be difficult to know whether:

“...a positive return on a property portfolio was due to market movements or the property selection of the investment manager”.

Consequently, it is still important to compare the performance of property investment across different superannuation schemes. Two respondents commented that it was difficult to construct a benchmark industry property index to use for comparison due to the illiquid and heterogeneous nature of property. Even comparison of two property investments in the same location and market is not easy. One respondent gave the example that in an:

“...economic downturn, one property can generate a higher return than another property in the same location because its lease had several years to run, while the lease on the other property was about to finish”.

Two of the sub-factors of Moderate Importance, “*Retail*” (5.53%) and “*Office*” (4.67%), are two of the four “*Property Type*” sub-factors. They are twice as important as the other two, “*Industrial*” (2.53%) and “*Residential*” (1.50%), which are categorised as being of Minor Importance. “*Residential*” is the lowest ranked sub-factor. The slightly higher weighting on “*Retail*” compared to “*Office*” could be due to its contribution to portfolio diversification. Retail property is a good diversifier as shown in Table 7.3 by the correlation coefficients between retail, office and industrial property¹¹⁹. The table shows there is strong correlation between retail property and the other property types, office and industrial. However, it is not as strong as the level of correlation between office and industrial property, supporting the diversification strength of retail property in a property portfolio.

¹¹⁹ The correlation coefficients were calculated using data from Q1:1985 to Q2:2017 obtained from the MSCI Australian Commercial Property Index Factsheet.

Table 7.3 Correlation Coefficients: Property Types

	Retail	Office	Industrial
Retail	1.00		
Office	0.71	1.00	
Industrial	0.75	0.92	1.00

Source: MSCI Australian Commercial Property Index Factsheet

One respondent commented that a benefit of “Retail”, principally shopping centres, is that it is:

“...resilient in a downturn and can easily be redeveloped to maintain profitability”.

Another respondent commented that “Retail” is better than “Office” for diversification, as it can cope better in an economic downturn, because:

“...people will always go shopping for necessities and low priced items”.

Most of the respondents during the interviews commented that they did not invest in either “Industrial” or “Residential”. However, one respondent said that they were currently investing in industrial real estate and were making a good return. This was partly because:

“...not many other funds were competing with them for investments in industrial real estate”.

Another respondent stated that “Industrial” was very risky, as it was more exposed to business cycle risk than “Office” and “Retail”. Tenants renting office and retail property had more stable businesses. All the respondents regarded residential real estate investment in Australia as being unattractive as the yield was too low. Respondents from two of the large superannuation schemes said they did invest in “Residential”. However, this was in overseas property, mainly in the United States. The residential property market, particularly multi-family in the United States, was seen to be large and growing. Most of the other superannuation schemes surveyed do not have enough funds to invest in overseas direct property, so only invested in domestic property. A respondent from one of the large superannuation schemes said one reason they did not invest in “Residential” was because their:

“...fund’s asset allocation to equity had a significant exposure to bank shares”.

A major component of bank assets are mortgages, so changing residential prices would have an impact on mortgage payments and subsequently affect the bank’s profitability and hence their share prices.

Only one of the “Type of Real Estate” sub-factors, “Unlisted property fund” (4.52%), was of Moderate Importance. The other two, “Direct property” (2.86%) and “REITs” (2.31%) were of Minor Importance. A reason why none of them fall in the Most Important category could be because a superannuation scheme’s mandate can specify the type of property that could be invested in. Consequently, their property investment team was unable to make independent decisions on the type of property to invest in. The level of funds held by each superannuation

scheme could influence their mandates directive on the percentage of funds they are allowed to invest in direct property, unlisted property funds or REITs. This observation is supported by comments made by the large superannuation schemes. They said their mandates require them to mainly invest in direct property, as they held a substantial amount of funds and wanted to have total control in their investments in property. The small and medium superannuation schemes did not hold enough funds to only invest in direct property, so their mandates directed them to mainly invest in property through unlisted property funds. The large superannuation schemes commented that any unlisted property fund investment they did was typically part of a joint venture, where they held the majority ownership. One respondent commented that the reason for this was that:

“...it is very difficult to get out of an unlisted property fund when there were a large number of investors in the fund”.

Not all of the investors would want to dissolve the fund. Another reason is that majority ownership would allow them to maintain control over the property investment. REITs were not a popular type of real estate vehicle for any of the respondent’s schemes. Two respondents said the only reason they held REITs was because they had inherited the REITs when they had merged with another superannuation scheme. Another respondent commented that:

“...they only held REITs purchased before the global financial crisis”.

A respondent from one of the smaller superannuation schemes said they preferred to invest in REITs, rather than unlisted property funds, as:

“REITs were subject to lower fees and commissions than unlisted property funds”.

One of the large superannuation schemes stated they regarded:

“REITs as equity, so REITs were not included in their property portfolio”.

Of the three “Geographical Location” sub-factors, only “CBD” (4.86%) falls into the Moderate Importance category. The other two, “International” (2.52%) and “non-CBD” (2.25%), are categorised as being of Minor Importance. “CBD” has double the weighting of “International” and “non-CBD”. Some of the respondents interviewed only invested in CBD property, while most of the others mainly invested in CBD and any non-CBD investment was in shopping centres. Only the respondents from the large superannuation schemes said they invested internationally.

The last three sub-factors of Moderate Importance are three of the four “Selection of External Fund Manager” sub-factors; “Investment Philosophy” (5.79%), “Organisational Stability” (4.44%) and “Local Experience” (4.42%). The remaining “Selection of External Fund Manager” sub-factor, “Client Needs” (1.9%), is categorised as being of Minor importance. The slightly higher weighting on “Investment Philosophy” could be because, as two respondents commented, superannuation schemes did not want there to be any conflict of interest between how they wanted to invest and how the external fund manager invested. Consequently, they would prefer

there to be an alignment of their interests with those of the external fund managers that they used. This alignment would occur if they used external fund managers that had a similar investment philosophy to theirs. “*Organisational Stability*” is also important, as a superannuation scheme’s long term investment horizon requires that their relationship with any external fund manager is stable. Some respondents commented that “*Local Experience*” is important, as external fund managers had more experience than them in investing in different locations. Particularly when they were interested in investing in a city they had never invested in before. The Minor Importance of “*Client Needs*” could be explained by a comment made by the smaller superannuation schemes. They commented that they would be one of many institutional investors investing with any particular external fund manager. Consequently, the external fund manager would not invest purely to meet the needs of one superannuation scheme, but would be more interested in generating a return. As a result, each superannuation scheme would have little control over what properties the external fund manager invested in.

All nine of the sub-factors that have Minor Importance have weightings between 2.86% and 1.50%. These weights are at least one third less than the weightings of the sub-factors that have Moderate Importance. These nine sub-factors have been discussed above when they were compared to the other sub-factors of the same factor. These comparisons reveal the small impact that these sub-factors have on decision-making relative to the other sub-factors. In particular, “*Client Needs*” (1.90%) and “*Residential*” (1.50%) are not very important in the decision-making.

7.3 Survey Results for Sub-groups Within the Whole Sample of Superannuation Schemes

In order to see if the responses by the different size superannuation schemes that vary in their degree of reliance on asset consultants are similar or different, the responses by the small, medium and larger superannuation schemes will now be compared. Tables 7.4 and 7.5 show the rankings and weightings, respectively, for the three sub-groups compared to the whole sample. The average responses and priority rankings for the small, medium and large superannuation schemes are only uniform for one of the factors, “*Strategic Decision Making*”, which is consistent with the ranking given by the whole sample. For the other six factors and all twenty two of the sub-factors, they are inconsistent. This implies that significant differences may exist between the three groups.

Table 7.4 AHP Sub-group Rankings for Factors and Sub-factors

	Small (9)	Medium (8)	Large (3)	Overall (20)
<i>Factors</i>				
Strategic Decision Making	1	1	1	1
Selection of External Fund Manager	4	2	4	2
Investment Style*	2	5	2	3
Property Type*	3	4	6	4
Type of Real Estate Vehicle	5	6	7	5
Geographical Location	6	7	3	6
Qualitative Techniques	7	3	5	7
<i>Sub-factors</i>				
Core	1	4	2	1
Risk Adjusted Analysis	4	1	1	2
Return Analysis*	2	6	8	3
Personal Judgement	12	2	4	4
Risk Analysis	10	3	3	5
Investment Philosophy	7	5	11	6
Retail	3	10	9	7
CBD	8	11	7	8
Office	5	12	19	9
Unlisted Property Fund	6	9	22	10
Organisational Stability	11	8	14	11
Local Experience*	14	7	10	12
Value-added	9	15	6	13
Direct Property	16	14	13	14
Opportunistic	13	21	16	15
Industrial	15	16	20	16
International	19	18	5	17
Industry Peer Comparison	22	13	18	18
REITs	17	20	12	19
Non-CBD	18	17	15	20
Client Needs	20	19	17	21
Residential	21	22	21	22

*Significant differences at 5% level exist between the three sub-group weights.

Table 7.5 AHP Sub-Group Weightings for Factors and Sub-factors

	Small (9)	Medium (8)	Large (3)	Overall (20)
<i>Factors</i>				
Strategic Decision Making	22.04	25.98	27.47	24.43
Selection of External Fund Manager	14.36	20.83	11.73	16.55
Investment Style*	20.58 <i>a</i>	11.25 <i>a</i>	18.37	16.52
Property Type*	18.48 <i>a,b</i>	11.39 <i>a</i>	9.03 <i>b</i>	14.22
Type of Real Estate Vehicle	10.47	9.90	6.77	9.89
Geographical Location	8.58	8.50	15.73	9.62
Qualitative Techniques	5.53	12.18	10.80	8.98
<i>Sub-factors</i>				
Core	12.13	7.00	8.49	9.77
Risk Adjusted Analysis	7.01	11.49	12.20	9.45
Return Analysis*	10.76 <i>a,b</i>	6.66 <i>a</i>	6.09 <i>b</i>	8.68
Personal Judgement	4.00	8.78	8.88	6.62
Risk Analysis	4.28	7.82	9.19	6.30
Investment Philosophy	5.53	6.86	3.53	5.79
Retail	7.27	4.26	3.72	5.53
CBD	7.75	4.19	6.21	4.86
Office	6.73	3.81	1.83	4.67
Unlisted Property Fund	5.61	4.88	1.27	4.52
Organisational Stability	4.06	5.59	2.63	4.44
Local Experience*	3.08 <i>a</i>	6.48 <i>a</i>	3.60	4.42
Value-added	4.64	2.63	6.59	4.11
Direct Property	2.56	3.13	2.64	2.86
Opportunistic	3.80	1.65	2.28	2.65
Industrial	2.87	2.23	1.77	2.53
International	1.80	2.09	7.22	2.52
Industry Peer Comparison	4.53	3.40	1.92	2.36
REITs	2.30	1.88	2.85	2.31
Non-CBD	20.50	2.21	2.32	2.25
Client Needs	1.69	1.90	1.98	1.90
Residential	1.61	1.07	1.72	1.50

*The sub-group weights for a factor or sub-factor followed by the same letter indicate that there is a significant difference, at the 5% level, between these sub-groups based on the LSD procedure.

7.3.1 Sub-group Factor Weightings

The three most highly ranked of the seven factors, for all three sub-groups, make up just on 60% of the total weighting. The other factors are not as heavily weighted. The small superannuation scheme's three most highly ranked factors are "Strategic Decision Making" followed by "Investment Style" and "Property Type". The medium and large superannuation schemes also ranked "Strategic Decision Making" as their most preferred factor. However, the

second and third ranked factors for the medium superannuation schemes are “*Selection of External Fund Manager*” and “*Qualitative Techniques*”, while for the large superannuation schemes, they are “*Investment Style*” and “*Geographical Location*”. The finding that “*Strategic Decision Making*” is the top ranked factor by all the sub-groups reflects the need for superannuation schemes to invest in property that maximises their long term investment returns with the minimum amount of risk.

“*Selection of External Fund Manager*” was the second highest ranked factor by the whole sample. However, only the medium superannuation schemes gave this factor the same ranking. The small and large superannuation schemes ranked it as their fourth highest ranked factor. This is consistent with the comments made by the superannuation schemes as discussed in section 7.2.1. They revealed that the medium superannuation schemes had a closer relationship with external fund managers than the small and large superannuation schemes. While both the small and medium superannuation schemes commented that they mainly used external fund managers, the medium superannuation schemes appear to have a closer relationship with their external fund managers¹²⁰. This is because the small superannuation schemes could only use external fund managers recommended to them by asset consultants chosen by their board. Their inability to choose any external fund manager meant they did not regard the selection of an external fund manager as that important. The large superannuation schemes did not need to use external fund managers very often as they had internal investment managers. This meant their internal investment management team would make the majority of their property investment decisions in-house, largely in direct property.

The whole sample ranked “*Investment Style*”, “*Property Type*” and “*Type of Real Estate Vehicle*” as the third, fourth and fifth most important factors. During the interviews, most of the respondents commented that these three factors are specified in their superannuation schemes mandate. For “*Investment Style*”, the small and large superannuation schemes ranked it as their second most important factor, while the medium superannuation schemes ranked it as one of their least important factors. So while the respondents said “*Investment Style*” was specified in their mandate, it still was regarded by the small and large superannuation schemes as having a major influence on their property investment decisions. The whole sample ranking of “*Property Type*” as the fourth most important factor was due to the small and medium superannuation schemes ranking it higher than the large superannuation schemes. This could be because the small and medium superannuation schemes have a lower level of funds relative to the large superannuation schemes. This lower level of funds restricted their ability to diversify their property portfolio to include all property types. Consequently, they would choose to invest in the property types they are confident will generate the highest long term return. For “*Type of Real Estate Vehicle*”, all sub-groups regarded it as their fifth most preferred factor or lower.

¹²⁰ Of the eight medium superannuation schemes, two ranked “*Selection of External Fund Managers*” as number one while four gave it a ranking of two.

The lower level of funds held by the small and medium superannuation schemes could also explain why *“Geographical Location”* was ranked as the sixth most preferred factor by the whole sample. A lower fund level meant the small and medium superannuation schemes could not freely choose the location of their property investment. Subsequently, the small and medium superannuation schemes ranked *“Geographical Location”* as their sixth and seventh most preferred factor respectively. In contrast, the large superannuation schemes had enough funds to invest domestically and internationally, which could be why they ranked *“Geographical Location”* as their third most important factor.

“Qualitative Techniques” was the least preferred factor of the whole sample. However, only the small superannuation schemes regarded it as their least preferred factor. This could be due to their boards directing them to only invest in property through the external fund managers recommended to them by asset consultants chosen by the board. This means the property investment managers at the small superannuation schemes are unable to use their own personal judgement when investing in property. The lower reliance on asset consultants by the medium and large superannuation schemes means they are able to use qualitative techniques. Consequently, they regard *“Qualitative Techniques”* as more important than some of the other factors. The medium superannuation schemes ranked it as their third most preferred factor, while the large superannuation schemes ranked it as their fifth most preferred factor. This reflects their ability to include professional judgement in their property decision making.

7.3.2 Sub-group Sub-factor Weightings

There is a greater degree of difference in the average responses by the sub-groups on the sub-factors than there is on the factors. Table 7.4 shows that the three sub-groups do not give the same ranking to any of the twenty two sub-factors. However, for three factors, *“Property Type”*, *“Investment Style”* and *“Qualitative Techniques”*, the order of the sub-factor rankings priority is the same for all three sub-groups and identical to that of the whole sample. Reasons behind the order priority for these sub-factors were discussed in section 7.2.2. For the other four factors, *“Type of Real Estate”*, *“Geographical Location”*, *“Strategic Decision Making”* and *“Selection of External Fund Managers”*, the order is not the same. Reasons for the divergence of order priority for the sub-factors of these four factors will now be discussed.

The level of funds available to superannuation schemes appears to be the main reason why the sub-groups differ in their sub-factor rankings for three of the factors, *“Type of Real Estate Vehicle”*, *“Geographical Location”* and *“Strategic Decision Making”*. During the interviews, the large superannuation schemes commented that they had a sufficient level of funds to invest mainly in direct property, domestically and internationally, and to maintain a diversified property portfolio. With regards to *“Type of Real Estate Vehicle”*, they commented that they were directed by their investment mandate to mainly invest in *“Direct Property”*. Any investment in an *“Unlisted Property Fund”* would be in the form of a joint venture where they were the controlling partner. One of the large superannuation schemes stated that:

“...they will invest in property through joint ventures with no more than three partners”.

However, while they ranked “Direct Property” above “Unlisted Property Fund”, they gave “REITs” a similar weight to “Direct Property”. This was unexpected as most respondents commented in their interviews that since the global financial crisis, REITs were no longer seen as an attractive investment. Although one of the large superannuation schemes did comment that:

“...they invested in REITs in the United States, as they were currently under-priced”.

The small and medium superannuation schemes ranked “Unlisted Property Fund” as more important than “Direct Property” followed by “REITs”. This is consistent with comments made the small and medium superannuation schemes that they had insufficient funds to invest in direct property. As a result, they mainly invested in unlisted property funds managed by external fund managers.

In their interviews, all the superannuation schemes commented that they preferred to invest in CBD and only some invested in non-CBD. Any non-CBD investment was mainly in suburban shopping centres. However, as the large superannuation schemes had sufficient funds to invest overseas, they regarded the “Geographical Location” sub-factor “International” as slightly more important than “CBD”, but significantly more important than “non-CBD”. The lower level of funds held by the small and medium superannuation schemes meant they were not able to invest overseas and ranked “CBD” as much more important than “non-CBD” and “International”.

“Strategic Decision Making” was ranked number one by both the whole sample and the sub-groups. However, while the whole sample ranked “Risk Adjusted Analysis” as the most important sub-factor followed by “Return Analysis” and “Risk Analysis”, only the medium and large superannuation schemes ranked the sub-factors in the same order. The small superannuation schemes regarded “Return Analysis” as more important than “Risk Adjusted Analysis” followed by “Risk Analysis”. Their greater preference for “Return Analysis” could reflect the difficulty they face in actively trading their property investments. One of the large superannuation schemes commented that:

“...the lower level of funding available to smaller superannuation schemes meant they are more likely to buy and hold their property investments, which are typically REITs and unlisted property”.

This buy and hold approach means they would focus on investing in property that is likely to generate stable long-run returns. Two of the large superannuation schemes stated they actively traded their property portfolio to take advantage of underpricing and overpricing. Consequently, they would need to consider the risk adjusted returns on their property investments.

The divergence in importance for the “Selection of External Fund Manager” sub-factors amongst the sub-groups could be attributed to their ability or lack of ability to freely choose the external fund managers they invest with. All the sub-groups regarded “Client Needs” as the least

important “*Selection of External Fund Manager*” sub-factor. However, only the small superannuation schemes considered “*Investment Philosophy*” to clearly be the most important sub-factor. The medium superannuation schemes also ranked “*Investment Philosophy*” as the most important sub-factor, but gave it a weighting that was only slightly higher than their weight on “*Local Experience*”. Large superannuation schemes ranked “*Local Experience*” as the most important “*Selection of External Fund Manager*” sub-factor closely followed by “*Investment Philosophy*”. The stronger importance of “*Local Experience*” for the medium and large superannuation schemes than the smaller superannuation schemes could be because, unlike small superannuation schemes, they have a greater ability to choose the external fund managers they can invest through. This allows them to use the external fund manager who they regard has the best knowledge and ability to select property investments in locations that they are not familiar with.

7.4 Statistical Analysis of the Superannuation Scheme Sub-groups

A statistical analysis will now be undertaken on the AHP rankings for the surveyed superannuation schemes. It will involve firstly identifying whether the differences found in the rankings across the small, medium and large superannuation schemes are statistically significant. Measures of correlation will then be used to test for the existence of relationships between the factors and sub-factors.

The AHP rankings of the factors and sub-factors by the superannuation scheme sub-groups are not all uniform. The superannuation schemes were asked to rank the importance of seven factors and twenty two sub-factors in their decision-making. In section 7.3, reasons behind the inconsistent rankings by the small, medium and large superannuation schemes for six of the seven factors and all twenty two sub-factors are discussed. One-way ANOVA, least significant difference (LSD) and two-way ANOVA will be used to test whether any of these inconsistencies are due to significant differences.

7.4.1 ANOVA and LSD Test

One-way ANOVA tests whether there are significant differences in the responses given by the small, medium and large superannuation schemes. The test null hypothesis will be whether the means of the factors or sub-factors are identical for these three groups¹²¹. The one-way ANOVA results for the seven factors are provided in Table 7.6 and for the twenty two sub-factors in Table 7.8. The F-test statistics and p-values reveal that significant differences exist for two of the factors, “*Property Type*” and “*Investment Style*” and two of the sub-factors, “*Return Analysis*” and “*Local Experience*”. For these factors and sub-factors, their F-values are greater than the *F-crit* and their P-values are less than the 0.05 probability level. One-way ANOVA only tests whether at least one group differs from the other groups, but not which group differs.

¹²¹ The factors or sub-factors will be the dependent variable and the sub-groups of superannuation schemes the independent variable.

Consequently, the LSD test is undertaken on these two factors and sub-factors to identify which of the three groups have different means. The findings of the LSD tests are shown in Table 7.7 for the two factors and Table 7.9 for the two sub-factors. For the factor “*Property Type*” and the sub-factor “*Return*”, significant differences exist between the means of the small and medium superannuation schemes and the small and large superannuation schemes. A significant difference only occurs between the means of the small and medium superannuation schemes for the other factor “*Investment Style*”, and other sub-factor “*Local experience*”. The rankings and weights by the whole sample for the remaining five factors and twenty-two sub-factors that the null hypothesis was not rejected for, may be considered to be an indication of how important they are to superannuation schemes when making decisions on property investments.

Table 7.6 ANOVA (One-Way) for Factors

Factors		Sum of Squares	df	Mean Square	F-value	P-value
Type of Real Estate	Between Groups	0.00314	2	0.00157	0.28605	0.7547
	Within Groups	0.09336	17	0.00549		
	Total	0.0965	19			
Geographical Location	Between Groups	0.01319	2	0.0066	0.78983	0.19706
	Within Groups	0.06265	17	0.00369		
	Total	0.07585	19			
Property Type	Between Groups	0.03086	2	0.01543	5.6271*	0.01332
	Within Groups	0.04662	17	0.00274		
	Total	0.07748	19			
Strategic Decision Making	Between Groups	0.0098	2	0.0049	0.57462	0.57348
	Within Groups	0.14493	17	0.00853		
	Total	0.15473	19			
Investment Style	Between Groups	0.03806	2	0.01903	5.65599*	0.01309
	Within Groups	0.0572	17	0.00336		
	Total	0.09526	19			
Selection of External Fund Manager	Between Groups	0.02591	2	0.01296	2.0718	0.1566
	Within Groups	0.10632	17	0.00625		
	Total	0.13224	19			
Qualitative Techniques	Between Groups	0.01988	2	0.00994	3.02768	0.07503
	Within Groups	0.05582	17	0.00328		
	Total	0.07571	19			

*The *F-crit* is 3.5915 for all the factors.

Table 7.7 Least Significant Difference Test of Significant Factors

Property Type (MSE = 0.00274)				Investment Style (MSE = 0.00336)			
	Small	Medium	Large		Small	Medium	Large
Mean	0.185	0.114	0.090	Mean	0.206	0.112	0.184
N	9	8	3	N	9	8	3
Small	0	0.05366*	0.07363*	Small	0	0.05943*	0.08153
Medium	0.05366*	0	0.07477	Medium	0.05943*	0	0.08280
Large	0.07362*	0.07477	0	Large	0.08153	0.08280	0

*This LSD is less than the difference between the two sub-group means. The t-critical value for $\alpha=0.05$ with degrees of freedom of 17 is 2.1098.

Table 7.8 ANOVA (One-Way) for Sub-factors

Factors		Sum of Squares	df	Mean Square	F	P-value
Direct Property	Between Groups	0.019671	2	0.09835	1.87359	0.018393
	Within Groups	0.89242	17	0.0525		
	Total	1.08913	19			
REITs	Between Groups	0.12251	2	0.06126	2.95034	0.07945
	Within Groups	0.35296	17	0.02076		
	Total	0.47547	19			
Unlisted Property Fund	Between Groups	0.28172	2	0.14086	3.34385	0.05962
	Within Groups	0.71614	17	0.04213		
	Total	0.99786	19			
CBD	Between Groups	0.05765	2	0.02882	1.08665	0.35966
	Within Groups	0.45093	17	0.02653		
	Total	0.50858	19			
Non-CBD	Between Groups	0.02818	2	0.01409	0.64523	0.53691
	Within Groups	0.37117	17	0.02183		
	Total	0.39934	19			
International	Between Groups	0.14274	2	0.07137	3.44894	0.0553
	Within Groups	0.35178	17	0.02069		
	Total	0.49452	19			
Industrial	Between Groups	0.00828	2	0.00414	0.44928	0.64545
	Within Groups	0.15657	17	0.00921		
	Total	0.16485	19			
Office	Between Groups	0.05955	2	0.02977	2.54567	0.10788
	Within Groups	0.19882	17	0.0117		
	Total	0.25837	19			
Retail	Between Groups	0.00355	2	0.00177	0.08786	0.9163
	Within Groups	0.34344	17	0.0202		
	Total	0.34699	19			
Residential	Between Groups	0.02548	2	0.01274	2.10338	0.15268
	Within Groups	0.10299	17	0.00606		
	Total	0.12847	19			
Return Analysis	Between Groups	0.29015	2	0.14507	4.41776*	0.02851
	Within Groups	0.55826	17	0.03284		
	Total	0.84841	19			
Risk Analysis	Between Groups	0.06916	2	0.03458	3.04967	0.07383
	Within Groups	0.19277	17	0.01134		

	Total	0.26193	19			
Risk Adjusted Analysis	Between Groups	0.07749	2	0.03874	0.60425	0.55781
	Within Groups	1.09004	17	0.06412		
	Total	1.16753	19			
Core	Between Groups	0.02422	2	0.01211	0.35158	0.70857
	Within Groups	0.58544	17	0.03444		
	Total	0.60965	19			
Value-added	Between Groups	0.04308	2	0.02154	1.61534	0.22789
	Within Groups	0.22667	17	0.01333		
	Total	0.26975	19			
Opportunistic	Between Groups	0.01077	2	0.00538	0.3079	0.73922
	Within Groups	0.29758	17	0.0175		
	Total	0.30835	19			
Client Needs	Between Groups	0.01533	2	0.00767	1.77168	0.20004
	Within Groups	0.07356	17	0.00433		
	Total	0.08889	19			
Local Experience	Between Groups	0.04533	2	0.02267	10.3915*	0.00113
	Within Groups	0.03708	17	0.00218		
	Total	0.08241	19			
Organisational Stability	Between Groups	0.00772	2	0.00386	0.7062	0.50743
	Within Groups	0.09288	17	0.00546		
	Total	0.10059	19			
Investment Philosophy	Between Groups	0.02191	2	0.01096	1.50535	0.25008
	Within Groups	0.12372	17	0.00728		
	Total	0.14563	19			
Personal Judgement	Between Groups	0.02536	2	0.01268	0.60223	0.55886
	Within Groups	0.35793	17	0.02105		
	Total	0.38329	19			
Industry Peer Comparison	Between Groups	0.02528	2	0.01264	0.59923	0.56043
	Within Groups	0.35857	17	0.02109		
	Total	0.38385	19			

*The *F-crit* is 3.5915 for all the sub-factors.

Table 7.9 Least Significant Difference Test of Significant Sub-factors

Return (MSE =0.00274)				Local Experience (MSE = 0.00336)			
	Small	Medium	Large		Small	Medium	Large
<i>Mean</i>	0.488	0.257	0.222	<i>Mean</i>	0.214	0.311	0.307
<i>N</i>	9	8	3	<i>N</i>	9	8	3
Small	0	0.18578*	0.25489*	Small	0	0.04787*	0.06567
Medium	0.18578*	0	0.25884	Medium	0.04787*	0	0.06669
Large	0.25489*	0.25884	0	Large	0.06567	0.06669	0

*This LSD is less than the difference between the two sub-group means. The *t-critical* value for $\alpha=0.05$ with degrees of freedom of 17 is 2.1098.

The finding of statistical differences between the means of the sub-groups for “*Property Type*” is consistent with the discussion in section 7.3.1 on small superannuation schemes having less freedom than the medium and large superannuation schemes to invest in different property types. For “*Investment Style*”, the existence of statistical differences in sub-group means supports

the large differences across the sub-group factor weightings and rankings in section 7.3.1. These indicate that the medium superannuation schemes regard *“Investment Style”* as considerably less important than the small and large superannuation schemes. However, no explanation was able to be given for this. In Table 7.7, the LSD test results show that the significant difference only occurs between means of the small and medium superannuation schemes.

In the earlier section 7.3.2, the existence of differences between the responses by the sub-groups for the sub-factors *“Return Analysis”* and *“Local Experience”* was attributed to the lower level of funds and reliance on asset consultants that are characteristics of most of the small superannuation schemes. As discussed in 7.3.2, small superannuation schemes differ from the larger schemes as they typically buy and hold the property investments that are more likely to produce a stable return. Consequently, they rank *“Return Analysis”* above *“Risk Adjusted Analysis”* and *“Risk Analysis”*. Medium and large superannuation schemes have a larger amount of funds to invest so are able to diversify risk across a wider range of property investments. Consequently, they regard *“Risk Adjusted Analysis”* as more important than *“Risk Analysis”* and *“Return Analysis”*. The significant difference in the means of the small and medium superannuation schemes for *“Local Experience”* can be explained by most of the small superannuation schemes being required to only use the external fund managers recommended by board appointed asset consultants. As a result, an external fund manager’s local experience would not be as important to them as it is for the medium and large superannuation schemes. Medium superannuation schemes would choose external fund managers who invested in property in locations that the superannuation schemes had little knowledge about. However, the LSD tests in Table 7.9 for *“Local Experience”* show only the difference between the means of the small and medium superannuation schemes are significant. This could be because the large superannuation schemes mainly invest in direct property, so their responses to the questions on the sub-factors of *“Selection of External Fund Manager”*, like *“Local Experience”*, were neutral.

While one-way ANOVA tested for differences in the responses by the three sub-groups, two-way ANOVA will now be used to test for significant differences after accounting for differences between the individual respondents. This is possible as there are multiple observations for each of the independent variables, which in this thesis are the individual superannuation schemes and the factors or sub-factors. The test null hypotheses for the two-way ANOVA will be that identical means exist for the superannuation schemes and identical means exist for the factors or sub-factors. Tables 7.10 and 7.11 show the findings by two-way ANOVA on whether the test null hypotheses hold.

Table 7.10 ANOVA (Two-Way) for Factors

Factors		Sum of Squares	df	Mean Square	F-value	P-value	F-crit
Overall	Factors	0.36813	6	0.06136	9.88271*	0.00000	2.17910
	Funds	0.00000	19	0.00000	0.00000	1	1.67851
	Error	0.70776	114	0.00621			
	Total	1.07589	139				
Small	Factors	0.21702	6	0.03617	9.38006*	0.00000	2.29460
	Funds	0.00000	8	0.00000	0.00002	1	2.13823
	Error	0.18509	48	0.00386			
	Total	0.40212	62				
Medium	Factors	0.20338	6	0.03390	4.86700*	0.00074	2.32399
	Funds	0.00000	7	0.00000	0.00000	1	2.23707
	Error	0.29252	42	0.00696			
	Total	0.49590	55				
Large	Factors	0.08858	6	0.01476	1.98402	0.147179	2.9961
	Funds	0.00000	2	0.00000	0.00001	0.99998	3.88529
	Error	0.08923	12	0.00744			
	Total	0.17788	20				

*The null hypothesis is rejected when F-value is greater than F-crit and the P-value is less than the alpha of 0.05.

Table 7.11 ANOVA (Two-Way) for Sub-factors

Factors		Sum of Squares	df	Mean Square	F-value	P-value	F-crit
Overall	Sub-Factors	9.62565	21	0.45836	19.24231*	0.00000	1.58241
	Funds	0.00942	19	0.00050	0.020804	1	1.61267
	Error	9.50444	399	0.02382			
	Total	19.13951	439				
Small	Sub-Factors	5.25889	21	0.25042	13.1946*	0.00000	1.61918
	Funds	0.00085	8	0.00011	0.00559	1	1.99388
	Error	3.18852	168	0.01898			
	Total	8.44826	197				
Medium	Sub-Factors	4.16644	21	0.19840	9.7281*	0.00000	1.62827
	Funds	0.00003	7	0.00000	0.00000	1	2.07024
	Error	2.99802	147	0.02039			
	Total	7.16449	175				
Large	Sub-Factors	1.78008	21	0.08477	2.04826*	0.0238	1.81282
	Funds	0.00615	2	0.00308	0.07431	0.9285	3.21994
	Error	1.73814	42	0.04138			
	Total	3.52437	65				

*The null hypothesis is rejected when F-value is greater than the F-crit and P-value is less than the alpha of 0.05.

In Table 7.10, significant differences between the responses by the overall sample, the small superannuation schemes and the medium superannuation schemes for the seven factors

are shown to exist. However, for the large superannuation schemes, this is not the case. This indicates the responses by the large superannuation schemes are similar. Two possible reasons for this were discussed in section 7.3.1, that is the large superannuation schemes have internal investment managers and do not need to invest through external fund managers and they have a large amount of funds that allows them to invest mainly in direct property. While the in-house investment decisions made by each of the large superannuation schemes may not be identical, their focus on investing in direct property would suggest that their decision-making on property investment could be comparable. Consequently, their average response on the importance of the seven factors in their decision-making will be similar. The two-way ANOVA results for the superannuation schemes and sub-factors are in Table 7.11. A difference is shown to exist between the means of the overall sample, all three sub-groups and the means of all twenty-two sub-factors. This could be because, while factors represent general areas of decision-making, the sub-factors are more specific as they are components of the factors. The responses of each of the superannuation schemes, regardless of them being small, medium or large, could differ across the sub-factors because of this. As explained in section 7.3.2, the degree of difference in the responses by the three sub-groups was substantially larger for the sub-factors than the factors. The dissimilar investment mandates and level of funds for each superannuation scheme could be reasons for this.

7.4.2 Correlation Between Factors and Sub-factors for the Superannuation Schemes

In order to investigate if a relationship exists between any of the superannuation fund's factors and sub-factors, the Spearman's rank-order correlation coefficient, r , is calculated for each of the twenty eight pairs of factors and each of the two hundred and fifty three pairs of sub-factors. Positive correlation implies decisions on these factors or sub-factors work in the same direction. That is, the factors or sub-factors in these pairings are regarded as being important when considered together. In contrast, negative correlation indicates that decisions on these factors or sub-factors work in opposite directions. Consequently, when one factor or sub-factor is regarded as being important, the other factor or sub-factor will be regarded as being less important, and vice a versa.

7.4.2.1 Correlation and all the Superannuation Schemes

With a sample size of twenty superannuation schemes, the critical values for the Spearman's correlation coefficient being significant are when r is less than -0.472 or greater than 0.472. Table 7.12 presents the correlation coefficients for the twenty eight pairs of factors. Both positive and negative correlations exist between the twenty one pairs of non-identical factors, with four pairings being found to be significantly correlated at the 95% level. They are highlighted in Table 7.12.

Table 7.12 Factor Spearman’s Correlation (All 20 Superannuation Schemes)

	Type of Real Estate	Geographical Location	Property Type	Strategic Decision	Investment Style	External Manager	Qualitative Technique
Type of Real Estate	1						
Geographical Location	-0.116	1					
Property Type	0.527*	-0.069	1				
Strategic Decision	-0.412	-0.005	-0.545*	1			
Investment Style	0.162	-0.043	0.528*	-0.522*	1		
External Manager	-0.359	-0.050	-0.219	-0.048	-0.268	1	
Qualitative Technique	-0.298	-0.218	-0.415	0.247	-0.383	-0.002	1

*Correlation is significant at the 0.05 level (two-tailed) as the critical values are -0.472 and 0.472 (N-2=18).

Two of these have significant moderate positive correlation and two have significant moderate negative correlation. They are:

- Moderate positive correlation
 - “Property Type” and “Investment Style” ($r = 0.528$)
 - “Property Type” and “Type of Real Estate Vehicle” ($r = 0.527$)
- Moderate negative correlation
 - “Strategic Decision Making” and “Property Type” ($r = -0.545$)
 - “Strategic Decision Making” and “Investment Style” ($r = -0.522$)

The factor “Property Type” is one of the factors in both of the factor pairings that show moderate positive correlation. The positive correlation between “Property Type” and “Investment Style” could be due to the investment mandates of superannuation schemes. Their mandate could specify the percentage of the property portfolio to be invested in industrial, office, retail and residential property, as well as whether it should be core, opportunistic and/or value-added property. Consequently, decisions on property investment would need to consider the percentages set for “Property Type” and “Investment Style”, interdependently leading to their positive correlation. The positive correlation for “Type of Real Estate Vehicle” and “Property Type” could arise from superannuation schemes preferring to invest in particular types of property, that is direct property or unlisted property funds, based on the amount of funds they have available to invest along with their property types being set by the superannuation scheme’s mandate. In their interviews, the larger superannuation schemes said they were able to invest mainly in direct property as they had a sufficient amount of funds to do so, while most of the smaller superannuation schemes said their lack of funds meant they mainly invested in unlisted property funds.

The two moderately negatively correlated factor pairings have “*Strategic Decision Making*” as one of the factors. These negative correlations could be due to the mandates of the superannuation schemes specifying the “*Property Type*” and “*Investment Style*” for property investments. However, the fund’s internal investment managers could use their own “*Strategic Decision Making*” to select the best core, opportunistic or value-added types of industrial, office, retail and residential property. As a result, “*Strategic Decision Making*” is independent of both “*Property Type*” and “*Investment Style*”.

The correlation coefficients for the pairs of sub-factors are shown in Table 7.13. Significant correlation at the 95% level was found for twenty seven of the two hundred and ten pairings of non-identical sub-factors. One factor pair exhibited very strong negative significant correlation and two strong negative significant correlations. All three of these correlations are between sub-factor pairings with the same factor. The remaining twenty four factor pairs display moderate significant correlation, but only six are correlations between sub-factor pairings with the same factor. Only the correlations between the sub-factor pairs with the same factor will be discussed. This is because the existence of their relationship can be explained. This is not possible for correlations between sub-factor pairs with different factors.

The nine significantly correlated sub-factor pairings that will be discussed are:

- Very strong negative correlation
 - “*Personal Judgement*” and “*Industry Comparison*” ($r = -0.99$)
- Strong negative correlation
 - “*Direct Property*” and “*Unlisted Property*” ($r = -0.82$)
 - “*Return Analysis*” and “*Risk Adjusted Analysis*” ($r = -0.80$)
 - “*Core*” and “*Value-added*” ($r = -0.77$)
- Moderate negative correlation for sub-factors from the same factor
 - “*Non-CBD*” and “*International*” ($r = -0.53$)
 - “*Office*” and “*Industrial*” ($r = -0.56$)
 - “*Core*” and “*Opportunistic*” ($r = -0.54$)
 - “*Organisational Stability*” and “*Investment Philosophy*” ($r = -0.50$)
 - “*Risk Analysis*” and “*Risk Adjusted Analysis*” ($r = -0.55$)

Table 17.13 Sub-factor Spearman's Correlation (All 20 Superannuation Schemes)

	Direct Property	REITs	Unlisted Property	CBD	Non-CBD	International	Industrial	Office	Retail	Residential	Return	Risk	Risk Adjusted	Core	Value-added	Opportunistic	Client Needs	Local Experience	Organisation Stability	Investment Philosophy	Personal Judgement	Industry Comparison
Direct Property	1																					
REITs	-0.29	1																				
Unlisted Property	-0.82*	-0.14	1																			
CBD	-0.17	-0.05	0.00	1																		
Non-CBD	-0.31	0.24	0.32	-0.37	1																	
International	0.32	-0.02	-0.22	-0.45	-0.53*	1																
Industrial	-0.16	0.57*	0.10	-0.43	0.26	0.34	1															
Office	-0.09	-0.32	0.23	0.45	-0.11	-0.37	-0.56*	1														
Retail	-0.30	-0.11	0.11	0.16	-0.08	-0.09	-0.32	-0.38	1													
Residential	0.59*	-0.15	-0.41	-0.36	-0.02	0.14	-0.02	-0.04	-0.46	1												
Return	-0.18	0.00	0.10	0.29	0.44	-0.40	-0.22	0.18	0.16	-0.24	1											
Risk	0.28	0.13	-0.38	-0.11	-0.27	0.51*	0.08	-0.35	0.24	-0.11	0.04	1										
Risk Adjusted	0.01	-0.17	0.17	-0.20	-0.19	0.06	0.12	0.02	-0.24	0.36	-0.80*	-0.55*	1									
Core	0.07	-0.33	0.05	0.05	-0.03	-0.06	-0.40	-0.10	0.54*	-0.01	0.01	0.12	0.02	1								
Value-added	-0.11	0.35	-0.02	-0.23	0.21	-0.01	0.27	0.17	-0.42	-0.12	-0.17	-0.06	0.09	-0.71*	1							
Opportunistic	0.06	0.06	-0.12	-0.20	-0.07	0.33	0.40	-0.38	-0.06	0.08	0.15	0.10	-0.19	-0.54*	-0.04	1						
Client Needs	0.29	-0.24	-0.05	-0.35	0.13	0.11	-0.07	-0.27	-0.01	0.20	-0.07	-0.30	0.15	0.15	-0.29	0.14	1					
Local Experience	0.53*	-0.10	-0.43	-0.09	-0.12	0.13	0.12	-0.09	-0.30	0.46	-0.26	0.28	0.16	-0.13	0.10	0.15	-0.22	1				
Organisation Stability	0.15	0.14	-0.21	0.12	-0.10	0.16	0.15	0.12	-0.31	0.04	0.15	0.10	-0.12	-0.20	0.17	0.19	-0.22	0.15	1			
Investment Philosophy	-0.58*	0.17	0.46	0.34	-0.01	-0.24	-0.03	0.30	0.07	-0.34	0.07	-0.05	-0.09	-0.12	0.11	-0.27	-0.40	-0.43	-0.50*	1		
Personal Judgement	0.57*	-0.09	-0.57*	-0.08	-0.43	0.50*	-0.28	-0.09	0.10	0.33	-0.14	0.41	-0.04	0.44	-0.24	-0.19	0.06	0.27	0.30	-0.48*	1	
Industry Comparison	-0.54*	0.06	0.55*	0.06	0.39	-0.47	0.29	0.09	-0.13	-0.25	0.08	-0.43	0.11	-0.48*	0.27	0.22	-0.10	-0.21	-0.32	0.48*	-0.99*	1

*Correlation is significant at the 0.05 level (two-tailed) as the critical values are -0.472 and 0.472 (N-2=18).

The “*Qualitative Technique*” factor only has two sub-factors; “*Personal Judgement*” and “*Industry Comparison*”. The very strong negative correlation between these sub-factors can be expected. During the interviews, the majority of superannuation schemes stated they used personal judgement when choosing between alternative property investments. Industry peer comparison was not regarded as being as important because they wanted to perform better than the other superannuation schemes so would not use the same decisions. The strong negative correlation between two of the “*Type of Real Estate*” sub-factors, “*Direct Property*” and “*Unlisted Property Funds*”, reflects the finding that the large superannuation schemes, due to the substantial amount of funds they had to invest, mainly invested in direct property, while the small superannuation schemes mainly invested in unlisted property funds. This indicates that superannuation schemes consider direct property and unlisted property funds to be very different types of investment vehicles. The “*Strategic Decision Making*” sub-factors “*Return Analysis*” and “*Risk Adjusted Analysis*” also show strong negative correlation. Their correlation supports the notion that investment managers assess both the return and risk of property investments. The fundamental concept is that the higher the risk, the higher the required return. Considering return and risk independently would be inappropriate. A risk adjusted approach which incorporates both return and risk would be used. A negative correlation also exists between “*Risk Analysis*” and “*Risk Adjusted Analysis*”. However, it is a moderate correlation. Risk adjusted analysis includes measures of risk and return. Consequently, you would expect decision makers to either use risk analysis or risk adjusted analysis. The lower level of correlation implies that while it is unlikely that a decision-maker would use both risk adjusted analysis and risk analysis, it is even more unlikely they will use risk adjusted analysis and return analysis. The strong negative correlation between the “*Investment Style*” sub-factor pair “*Core*” and “*Value-added*” and the moderate negative correlation between the sub-factor pair “*Core*” and “*Opportunistic*” was expected as the surveyed superannuation schemes mainly invest in core property with very little value-added or opportunistic investment being undertaken.

The remaining three sub-factor pairings with moderate negative correlations are for the following factors; “*Geographical Location*”, “*Property Type*” and “*Selection of External Fund Manager*”. Negative correlation exists for the “*Geographical Location*” sub-factor pairing “*non-CBD*” and “*International*”. This is consistent with the small and medium superannuation schemes only investing in Australian property, whether CBD or non-CBD, as they do not have sufficient funds to invest overseas. While a negative correlation does exist between the sub-factor pairing of “*CBD*” and “*International*”, it is not significant. Consequently, the preference for “*non-CBD*” investments in Australia by the small and medium superannuation schemes over “*International*” investments is stronger than their preference for Australian “*CBD*” over “*International*” property. The negative correlation for the “*Property Type*” sub-factor pairing “*Office*” and “*Industrial*” reflects the mandate of the majority of superannuation schemes specifying they only invest in “*Office*” and “*Retail*”. These property types are regarded as being able to earn substantially higher returns in Australia than “*Industrial*” and “*Residential*”. The last sub-factor pairing with

moderate negative correlation is the “*Selection of External Fund Manager*” sub-factor pair “*Organisational Stability*” and “*Investment Philosophy*”. This is an interesting finding, as both “*Organisational Stability*” and “*Investment Philosophy*” are regarded as being moderately important sub-factors. However, “*Investment Philosophy*” does have a slightly higher weighting than “*Organisational Stability*”. The negative correlation supports this weighting as the superannuation schemes regard an external fund manager’s “*Investment Philosophy*” as being more important than “*Organisational Stability*”.

7.4.2.2 Correlation and the Sub-groups

Correlation coefficients were also calculated for the factors and sub-factors in each of the sub-groups. The sample sizes for the sub-groups are a lot smaller than the sample size of twenty for all the superannuation schemes. Consequently, the correlation coefficients for the sub-group factor and sub-factor pairings will need to be considerably larger to be recognised as statistically significant. There are nine small superannuation schemes, eight medium superannuation schemes and three large superannuation schemes. This means the critical values for the Spearman’s correlation coefficients between a factor or sub-factor pair to be regarded as being statistically significant will need to be less than or equal to -0.786 and greater than or equal to 0.786 for the nine small superannuation schemes, less than or equal to -0.886 and greater than or equal to 0.886 for the eight medium superannuation schemes, and less than or equal to -1 or greater than or equal to 1 for the three large superannuation schemes. The correlation coefficients for the small, medium and large superannuation schemes factor pairings are shown in Tables 7.14, 7.15 and 7.16 respectively. The tables reveal that no statistically significant correlation is found for these factor pairs.

Table 7.14 Factor Spearman’s Correlation (9 Small Superannuation Schemes)

	<i>Type of Real Estate</i>	<i>Geographical Location</i>	<i>Property Type</i>	<i>Strategic Decision</i>	<i>Investment Style</i>	<i>External Manager</i>	<i>Qualitative Technique</i>
<i>Type of Real Estate</i>	1						
<i>Geographical Location</i>	0.0722	1					
<i>Property Type</i>	0.2043	0.1170	1				
<i>Strategic Decision</i>	-0.3195	-0.5926	-0.7436	1			
<i>Investment Style</i>	-0.1611	0.3787	0.4900	-0.6746	1		
<i>External Manager</i>	-0.4653	-0.3504	-0.3870	0.4700	-0.4243	1	
<i>Qualitative Technique</i>	-0.2147	0.0324	0.0552	0.1517	-0.4186	-0.0421	1

*Correlation is significant at the 0.05 level (two-tailed) when the critical values are -0.786 and 0.786. (N-2=7).

Table 7.15 Factor Spearman's Correlation (8 Medium Superannuation Schemes)

	Type of Real Estate	Geographical Location	Property Type	Strategic Decision	Investment Style	External Manager	Qualitative Technique
Type of Real Estate	1						
Geographical Location	-0.3796	1					
Property Type	0.5685	0.24406	1				
Strategic Decision	-0.5109	-0.0859	-0.3112	1			
Investment Style	0.0334	0.7320	0.6367	0.0675	1		
External Manager	-0.2900	0.6528	-0.1353	-0.5023	0.0736	1	
Qualitative Technique	-0.0830	-0.6193	-0.3230	0.4207	-0.5749	-0.5856	1

*Correlation is significant at the 0.05 level (two-tailed) when the critical values are -0.886 and 0.886 (N-2=6).

Table 7.16 Factor Spearman's Correlation (3 Large Superannuation Schemes)

	Type of Real Estate	Geographical Location	Property Type	Strategic Decision	Investment Style	External Manager	Qualitative Technique
Type of Real Estate	1						
Geographical Location	0.4285	1					
Property Type	-0.1321	-0.9522	1				
Strategic Decision	0.5514	0.9901	-0.8998	1			
Investment Style	-0.1701	-0.9633	0.9993	-0.9159	1		
External Manager	0.2727	-0.7525	0.9177	-0.6523	0.9017	1	
Qualitative Technique	0.03102	-0.8898	0.9867	-0.8168	0.9797	0.9701	1

*Correlation is significant at the 0.05 level (two-tailed) when the critical values are -1 and 1 (N-2=1).

However, statistical significant correlation is found to exist for seven of the small superannuation schemes sub-factor pairs, three of the medium superannuation schemes sub-factor pairs, and thirty four of the large superannuation schemes sub-factor pairs. These are shown in Tables 7.17, 7.18 and 7.19. Only discussion of the correlations between the sub-factor pairings with the same factor will be undertaken. Of these sub-factor pairings, five for the small superannuation schemes, one for the medium superannuation schemes and three for the large superannuation schemes have the same factor. One of these sub-factor pairings is the same for all three sub-groups, while two are only for the large superannuation schemes and four only for the small superannuation schemes. These seven sub-factor pairings are all negative. The relationship between the sub-factors from different factors is unknown so is not discussed.

Table 7.17 Sub-factor Spearman's Correlation (9 Small Superannuation Schemes)

	Direct Property	REITs	Unlisted Property	CBD	Non-CBD	International	Industrial	Office	Retail	Residential	Return	Risk	Risk Adjusted	Core	Value-added	Opportunistic	Client Needs	Local Experience	Organisational Stability	Investment Philosophy	Personal Judgement	Industry Comparison
Direct Property	1.																					
REITs	-0.59	1																				
Unlisted Property	-0.86*	0.31	1																			
CBD	0.21	-0.11	-0.35	1																		
Non-CBD	0.06	-0.26	-0.04	-0.58	1																	
International	-0.26	0.14	0.54	-0.27	-0.53	1																
Industrial	-0.28	0.65	0.26	-0.44	-0.16	0.55	1															
Office	0.00	-0.15	-0.01	0.69	-0.27	-0.31	-0.66	1														
Retail	-0.46	0.04	0.39	-0.46	0.39	-0.06	-0.16	-0.34	1													
Residential	0.76	-0.32	-0.91*	0.45	-0.06	-0.52	-0.32	0.21	-0.54	1												
Return	0.33	-0.74	-0.06	-0.04	0.58	-0.28	-0.42	0.06	0.08	0.02	1											
Risk	-0.38	0.07	0.67	-0.44	0.07	0.55	0.42	-0.26	0.14	-0.55	0.28	1.										
Risk Adjusted	-0.02	0.41	-0.31	0.25	-0.48	-0.05	0.02	0.06	-0.05	0.25	-0.84*	-0.73	1.									
Core	0.19	-0.30	0.03	-0.08	0.25	-0.15	-0.56	0.38	0.28	-0.19	0.25	-0.18	-0.05	1								
Value-added	-0.75	0.48	0.44	-0.33	0.25	-0.09	0.25	-0.30	0.50	-0.44	-0.34	-0.06	0.26	-0.34	1							
Opportunistic	0.25	-0.12	-0.20	-0.01	-0.17	0.32	0.51	-0.47	-0.46	0.30	0.09	0.31	-0.24	-0.81*	-0.12	1						
Client Needs	0.75	-0.58	-0.45	-0.30	0.12	0.24	0.00	-0.34	-0.26	0.30	0.24	-0.11	-0.07	0.23	-0.53	0.29	1					
Local Experience	0.57	-0.56	-0.62	0.75	-0.08	-0.52	-0.56	0.47	-0.45	0.72	0.47	-0.34	-0.16	-0.14	-0.46	0.26	0.04	1				
Organisational Stability	0.21	-0.05	-0.08	-0.25	0.09	0.14	0.12	0.09	-0.50	0.09	-0.17	-0.24	0.18	0.19	-0.06	-0.02	0.51	-0.23	1			
Investment Philosophy	-0.71	0.54	0.49	0.28	-0.45	0.19	0.24	0.11	0.17	-0.30	-0.34	0.37	0.05	-0.52	0.38	0.11	-0.83*	-0.06	-0.63	1		
Personal Judgement	0.27	-0.47	-0.05	0.14	-0.21	0.14	-0.63	0.48	0.05	0.04	0.00	-0.29	0.23	0.75	-0.43	-0.54	0.40	0.00	0.31	-0.43	1	
Industry Comparison	-0.27	0.47	0.00	-0.07	0.16	-0.18	0.58	-0.45	-0.03	0.03	-0.05	0.22	-0.15	-0.79*	0.46	0.54	-0.44	0.05	-0.37	0.48	-0.99	1

*Correlation is significant at the 0.05 level (two-tailed) when the critical values are -0.786 and 0.786 (N-2=7)..

Table 7.18 Sub-factor Spearman's Correlation (8 Medium Superannuation Schemes)

	Direct Property	REITs	Unlisted Property	CBD	Non-CBD	International	Industrial	Office	Retail	Residential	Return	Risk	Risk Adjusted	Core	Value-added	Opportunistic	Client Needs	Local Experience	Organisational Stability	Investment Philosophy	Personal Judgement	Industry Comparison
Direct Property	1																					
REITs	0.34	1																				
Unlisted Property	0.03	0.51	1																			
CBD	0.01	0.07	-0.30	1																		
Non-CBD	0.16	0.64	0.90	-0.39	1																	
International	0.62	0.14	-0.08	0.49	-0.16	1																
Industrial	-0.06	0.57	0.77	-0.03	0.67	0.27	1															
Office	0.26	-0.23	-0.09	0.44	-0.04	0.08	-0.40	1														
Retail	-0.05	0.35	0.09	0.41	-0.02	0.54	0.54	-0.47	1													
Residential	0.88	0.55	0.35	-0.12	0.54	0.51	0.30	0.18	-0.03	1												
Return	0.58	0.65	-0.05	0.25	0.19	0.53	0.20	-0.11	0.56	0.60	1											
Risk	0.79	0.41	-0.25	0.32	-0.10	0.72	-0.06	0.03	0.43	0.61	0.89	1										
Risk Adjusted	0.15	0.48	0.65	-0.28	0.87	-0.05	0.58	0.10	-0.01	0.58	0.30	-0.02	1									
Core	0.52	0.65	0.54	0.11	0.43	0.66	0.73	-0.27	0.47	0.64	0.43	0.44	0.25	1								
Value-added	0.44	0.06	0.35	-0.04	0.31	-0.09	-0.24	0.66	-0.52	0.34	-0.16	0.03	0.08	0.04	1							
Opportunistic	0.03	0.64	0.41	-0.04	0.34	0.17	0.57	-0.66	0.77	0.09	0.52	0.34	0.10	0.53	-0.23	1						
Client Needs	-0.09	0.21	0.79	-0.73	0.85	-0.38	0.51	-0.19	-0.20	0.27	-0.16	-0.40	0.75	0.12	0.18	0.17	1					
Local Experience	0.48	0.57	0.25	-0.39	0.30	-0.10	-0.02	-0.33	-0.06	0.37	0.32	0.36	-0.06	0.36	0.38	0.52	0.15	1				
Organisational Stability	0.47	0.40	-0.46	-0.02	-0.27	0.15	-0.33	-0.33	0.13	0.25	0.62	0.70	-0.31	0.13	-0.15	0.32	-0.44	0.66	1			
Investment Philosophy	0.52	0.18	0.41	-0.74	0.58	-0.10	0.11	0.02	-0.55	0.68	-0.01	0.00	0.53	0.23	0.38	-0.18	0.66	0.40	0.03	1		
Personal Judgement	0.61	0.11	-0.59	0.18	-0.51	0.57	-0.31	-0.20	0.19	0.32	0.51	0.76	-0.47	0.29	-0.20	0.09	-0.65	0.36	0.83	-0.02	1	
Industry Comparison	-0.59	-0.11	0.60	-0.19	0.52	-0.56	0.31	0.21	-0.19	-0.30	-0.51	-0.75	0.48	-0.28	0.21	-0.09	0.66	-0.36	-0.83	0.03	-1.00*	1

*Correlation is significant at the 0.05 level (two-tailed) when the critical values are -0.886 and 0.886 (N-2=7)..

Table 7.19 Sub-factor Spearman's Correlation (3 Large Superannuation Schemes)

	Direct Property	REITs	Unlisted Property	CBD	Non-CBD	International	Industrial	Office	Retail	Residential	Return	Risk	Risk Adjusted	Core	Value-added	Opportunistic	Client Needs	Local Experience	Organisational Stability	Investment Philosophy	Personal Judgement	Industry Comparison	
Direct Property	1																						
REITs	-0.46	1																					
Unlisted Property	-0.69	-0.32	1																				
CBD	-1.00	0.37	0.76	1																			
Non-CBD	-0.65	0.97	-0.09	0.58	1																		
International	1.00	-0.41	-0.73	-1.00	-0.61	1																	
Industrial	0.21	0.77	-0.85	-0.30	0.60	0.26	1																
Office	-0.28	-0.73	0.88	0.37	-0.54	-0.33	-1.00	1															
Retail	-0.54	-0.50	0.98	0.62	-0.28	-0.59	-0.94	0.96	1														
Residential	0.98	-0.27	-0.82	-0.99	-0.49	0.99	0.40	-0.46	-0.70	1													
Return	-1.00	0.46	0.69	1.00	0.65	-1.00	-0.21	0.28	0.54	-0.98	1												
Risk	-0.89	0.01	0.94	0.93	0.24	-0.91	-0.63	0.68	0.86	-0.96	0.89	1											
Risk Adjusted	0.99	-0.35	-0.78	-1.00	-0.56	1.00	0.33	-0.39	-0.64	1.00	-0.99	-0.94	1										
Core	-0.35	-0.67	0.92	0.44	-0.47	-0.41	-0.99	1.00	0.98	-0.53	0.35	0.74	-0.47	1									
Value-added	0.20	0.78	-0.84	-0.29	0.61	0.25	1.00	-1.00	-0.93	0.39	-0.20	-0.62	0.32	-0.99	1								
Opportunistic	1.00	-0.46	-0.69	-1.00	-0.65	1.00	0.21	-0.28	-0.54	0.98	-1.00	-0.89	0.99	-0.35	0.20	1							
Client Needs	0.72	-0.95	0.00	-0.65	-1.00	0.68	-0.53	0.47	0.19	0.57	-0.72	-0.33	0.63	0.39	-0.54	0.72	1						
Local Experience	0.66	0.36	-1.00	-0.73	0.13	0.70	0.87	-0.90	-0.99	0.80	-0.66	-0.93	0.75	-0.94	0.87	0.66	-0.04	1					
Organisational Stability	0.20	0.78	-0.85	-0.30	0.61	0.26	1.00	-1.00	-0.93	0.39	-0.20	-0.63	0.32	-0.99	1.00	0.20	-0.53	0.87	1				
Investment Philosophy	-0.97	0.21	0.86	0.99	0.44	-0.98	-0.45	0.52	0.74	-1.00	0.97	0.98	-0.99	0.58	-0.44	-0.97	-0.52	-0.83	-0.45	1			
Personal Judgement	1.00	-0.46	-0.69	-1.00	-0.65	1.00	0.21	-0.28	-0.54	0.98	-1.00	-0.89	0.99	-0.35	0.20	1.00	0.72	0.66	0.20	-0.97	1		
Industry Comparison	-1.00	0.46	0.69	1.00	0.65	-1.00	-0.21	0.28	0.54	-0.98	1.00	0.89	-0.99	0.35	-0.20	-1.00	-0.72	-0.66	-0.20	0.97	-1.00	1	

*Correlation is significant at the 0.05 level (two-tailed) when the critical values are -1 and 1 (N-2=1).

The seven negative sub-factor pairings are:

- Significant for all three sub-groups
 - “*Personal Judgement*” and “*Industry Comparison*” ($r = -0.99$ for the small superannuation funds; $r = -1$ for the medium and large superannuation funds)
- Significant for only the large superannuation schemes
 - “*CBD*” and “*International*” ($r = -1$)
 - “*Office*” and “*Industrial*” ($r = -1$)
- Significant for only the small superannuation schemes
 - “*Direct Property*” and “*Unlisted Property*” ($r = -8.6$)
 - “*Return Analysis*” and “*Risk Adjusted Analysis*” ($r = -8.4$)
 - “*Core*” and “*Opportunistic*” ($r = -0.81$)
 - “*Client Needs*” and “*Investment Philosophy*” ($r = -8.3$)

Apart from the “*CBD*” and “*International*” sub-factor pairing, these sub-factor pairings displayed statistically significant negative correlations in the full sample of all twenty superannuation schemes. Instead of the “*Geographical Location*” sub-factor pair “*CBD*” and “*International*”, it was the sub-factor pairing of “*Non-CBD*” and “*International*” that significant negative correlation existed for in the full sample. In section 7.4.2.1, the negative correlation between “*Non-CBD*” and “*International*” was attributed to the smaller superannuation schemes having insufficient funds to invest in property overseas, so only investing in CBD and non-CBD. However, significant negative correlation for this sub-factor pairing was not found to exist for any of the sub-groups. The finding for the large superannuation schemes of significant negative correlation between “*CBD*” and “*International*” rather than “*Non-CBD*” and “*International*” could imply they generally choose to invest in either domestic “*CBD*” or “*International*”. However, when investing in “*non-CBD*” they would choose to invest in Australia rather than overseas. The large superannuation schemes are also the only sub-group that displayed significant negative correlation for the “*Property Type*” sub-factor pairing of “*Office*” and “*Industrial*”. As explained in section 7.4.2.1, the superannuation schemes preferred to invest in the property types office and retail and not industrial and residential. For the large superannuation schemes, this preference is particularly strong for office over industrial property.

The finding for all three sub-groups of significant negative correlation for the “*Qualitative Technique*” sub-factor pairing of “*Personal Judgement*” and “*Industry Comparison*”, is consistent with statements made during the interviews. In section 7.4.2.1, it was discussed how most of the surveyed superannuation schemes preferred to use their own judgements so that they could outperform other superannuation schemes.

The remaining four sub-factor pairings only displayed statistically significant negative correlation for the small superannuation schemes. These negative correlations reflect the small superannuation schemes access to a lower level of funding and having more restrictive

investment mandates compared to the larger superannuation schemes. For the “*Type of Real Estate*” sub-factor pairing of “*Direct Property*” and “*Unlisted Property*” and “*Investment Style*” sub-factor pairing of “*Core*” and “*Opportunistic*”, the preference by the small superannuation schemes for “*Unlisted Property*” and “*Core*” over “*Direct property*” and “*Opportunistic*” reflects how they do not have sufficient funds to invest in direct property and their investment mandates generally require them to invest in unlisted core property through external fund managers. Core property is specified to ensure there is a stable long-run return for members. Comments made during the interviews by some of the superannuation schemes, as discussed in section 7.3.2, indicate that the lower level of funding is behind the negative correlation between the “*Strategic Decision Making*” sub-factor pairing of “*Return Analysis*” and “*Risk Adjusted Analysis*”. The small superannuation schemes are more likely to adopt a buy and hold approach focusing on generating a stable return when investing in property, as this is more suitable for the low level of funds they hold. Consequently, they do not engage in active trading and do not use risk-adjusted analysis. The negative correlation for the “*Selection of External Fund Manager*” sub-factor pairing of “*Client needs*” and “*Investment philosophy*” can be expected. In section 7.3.2, it was discussed how the small superannuation schemes regarded “*Client needs*” as the least most important sub-factor of “*Selection of External Fund Manager*”, while giving “*Investment philosophy*” a considerably higher weighting than all the other “*Selection of External Fund Manager*” sub-factors. During their interviews, several of the small superannuation schemes commented that external fund managers would not consider their needs. One of the small superannuation schemes commented that this was because:

“They are one of many investors in each of the unlisted property funds that they invested in”

However, when choosing an external fund manager, it was possible to select one that had a similar investment philosophy to theirs.

7.4.3 Correlation between Sub-groups

Relationships could exist between the rankings given by the three sub-groups. So correlation coefficients are calculated between each of the sub-groups. Table 7.20 shows the Spearman’s correlation coefficients for the factors and sub-factors. Moderate positive correlation ($0.4 \leq r < 0.6$) is found between the small and large superannuation schemes’ factors and the sub-factors between the small and medium superannuation schemes and the medium and large superannuation schemes.

Table 7.20 Factor Spearman’s Correlation Between Sub-Groups

Sub-Groups	Factors	Sub-factors
Small versus Medium	0.43	0.68
Small versus Large	0.54	0.44
Medium versus Large	0.32	0.59

The existence of positive correlation between the factors for the small and large superannuation schemes could be due to the significantly higher rankings they both give to “*Investment Style*” and lower rankings they give to “*Selection of External Fund Managers*”, when compared to the medium superannuation schemes. While no reason can be provided for their higher weighting on “*Investment Style*”, their lower ranking on “*Selection of External Fund Manager*” can be explained. The lower ranking by the large superannuation schemes is because they have a team of in-house investment managers, so they do not need to employ external fund managers. For the small superannuation schemes, the lower ranking arises from their Board requiring them to use the advice of asset consultants to use particular external fund managers. The positive correlation between the small and medium superannuation scheme’s sub-factors may possibly be because of the significantly lower rankings they both have on “*International*” and “*REITs*”, relative to the large superannuation schemes. They do not have enough funds to invest in property overseas and consider REITs to be too risky to include in their property portfolios. For the medium and large superannuation schemes, the correlation between their sub-factors could be driven by the higher rankings they both give to “*Risk Adjusted Analysis*” and “*Personal Judgement*” and lower ranking to “*Return Analysis*”, relative to the small superannuation schemes.

7.5 Limitations of AHP

Whilst AHP is an accepted research methodology, using AHP to evaluate decision-making has its limitations. While the hierarchical modelling of decision-making replicates how decisions are influenced by several factors and related sub-factors, the use of pair-wise comparisons of alternative factors and the impact of human nature when making judgements can influence the validity of the AHP analysis. In terms of the alternative factors, the researcher needs to decide how many factors should be included and whether the chosen factors are appropriate. As the survey respondents would find it psychologically hard and tiring to simultaneously compare a large number of factors, the recommendation by Millar (1956) that more than seven (plus or minus two) factors would overburden people was adopted. However, this creates a limitation on the research as possible alternative factors could be incorrectly excluded. The extent of this limitation is minimal in this survey, as the factors and sub-factors included in the survey were selected based on previous surveys and the advice from two academics that are very experienced in property investment. This selection process also ensured that only independent factors were included. This is an essential requirement of AHP.

A limitation of doing a survey that involves human judgement is that this judgement may not be consistent. An advantage of AHP is that the level of consistency can be verified. In this survey, the responses by three of the survey participants showed some inconsistency. Removing their responses could reduce the impact of the limitation of using human judgement. However, removal of the responses had very little impact on the rankings derived for the factors and sub-factors, so they were not removed.

The intention of the survey was not to discover the best alternative factor. Instead, it was to evaluate the relative importance of the alternative factors at a point in time. The sample size may be regarded as small. However, a broad range of superannuation schemes were surveyed in terms of size and type. Furthermore, AHP is suitable for use with small samples. Consequently, whilst there are limitations associated with using AHP, it was felt the advantages of using AHP far outweighed these limitations.

7.6 Summary of AHP Findings for the Superannuation Schemes

The responses by the superannuation schemes to the AHP survey questions indicate that the most important factor in their decision making is "*Strategic Decision Making*" and that two characteristics of the sub-groups mean that the small, medium and large superannuation schemes differ in the degree of importance they give to some of the factors and sub-factors. During the interviews, the superannuation schemes acknowledged that these two characteristics influenced their rankings. The first characteristic is that the mandates of individual superannuation schemes can direct their property investment officers to invest in certain properties. The second is the substantial difference in the amount of funds that small, medium and large superannuation schemes have to invest in property. The smaller schemes had restrictive investment mandates, could only use external fund managers selected by board appointed asset consultants, and held a significantly lower level of funds than the larger schemes. The restrictive mandates and low level of funds reduced the ability of the smaller schemes to freely choose the properties that they invested in. They also meant the smaller schemes invested through unlisted property funds instead of direct property investment. The larger schemes used in-house investment managers, so they did not have to rely on external fund managers, and had substantially more freedom in their decision-making than the smaller schemes; hence their increased preference for direct property investment.

"*Strategic Decision Making*" is weighted and ranked as the most important of the seven factors by the whole sample, as well as the sub-groups. Its weight is considerably higher than the weights on the other six factors. This reflects how it is not subject to mandate restrictions like the other factors and the need for superannuation schemes to invest in property that generates a high return over the long run with the minimal amount of risk. The factors "*Selection of External Fund Manager*", "*Investment Style*" and "*Property Type*" were also important, but at a more moderate level. This is in contrast to the findings of earlier studies discussed in the Literature Review in Chapter 5. These studies found property type and geographical location to be the most important factors in decision-making on property investments by institutional investors. The finding that the surveyed superannuation schemes ranked strategic decision-making above these two factors implies that managed funds have become more concerned with the return and risk of their property portfolio, rather than focusing only on property type and geographical location.

The three most important sub-factors, "*Core*", "*Risk Adjusted Analysis*" and "*Return Analysis*", of the twenty two sub-factors have relatively higher weights than the other sub-

factors. The Annual Reports of all the superannuation schemes maintain that they are currently mainly investing in core property. This supports the superannuation schemes ranking “Core” as their most important sub-factor. The finding that “Risk Adjusted Analysis” was preferred to “Return Analysis” is in contrast to earlier surveys, which found that when doing quantitative analysis, institutional investors mainly used return analysis. This reflects the increased focus today on incorporating risk with the return analysis of property investment decisions.

Statistical analysis revealed that the degree of importance of some of the factors and sub-factors differed across the superannuation scheme sub-groups. The factors and sub-factors where statistically significant differences were found to exist by one-way ANOVA and LSD tests are listed below in Table 7.21.

Table 7.21 Existence of Statistically Significant Differences Between Sub-groups

<i>Factor and whole sample rank</i>	
• <i>Investment Style</i> (3)	Small and medium
• <i>Property Type</i> (4)	Small and medium; Small and large
<i>Sub-factor and whole sample rank</i>	
• <i>Return Analysis</i> (3)	Small and medium; Small and large
• <i>Local Experience</i> (12)	Small and medium

Two factors, “Investment Style” and “Property Type”, and two sub-factors, “Return” and “Local Experience” were identified as being significantly different between the sub-groups. Two-way ANOVA revealed that significant differences existed between the responses on the factors made by the individual respondents in the overall sample, small superannuation schemes and medium superannuation schemes, but not the large superannuation schemes. This was not the case for the sub-factors as, according to two-way ANOVA, significant differences existed for the overall sample as well as all three sub-groups. The similar responses by the large superannuation schemes on the factors could be because they focus on investing in direct property and, while the in-house investment decisions made by each of the large superannuation schemes may be different, this focus could lead to similar decision-making. Significant positive and negative relationships between four pairings of factors and eleven sub-factors were found using Spearman’s rank order correlation. Correlation between the sub-groups was also tested for and moderate positive correlation was found to exist between the small and large superannuation schemes’ factors, the small and medium superannuation scheme’s sub-factors and medium and large superannuation scheme’s sub-factors. These correlated factor pairings and sub-factor pairings are summarised in Table 7.22.

Table 7.22 Statistically Significant Correlation Between Factor and Sub-factor Pairings

	Small	Medium	Large	Overall
<u>Factor pairing</u>				
"Property Type" "Investment Style"				+ve
"Property Type" "Type of Real Estate Vehicle"				+ve
"Strategic Decision Making" "Property Type"				-ve
"Strategic Decision Making" "Investment Style"				-ve
<u>Sub-factor pairing</u>				
"Personal Judgement" "Industry Comparison"	-ve	-ve	-ve	-ve
"Direct Property" "Unlisted Property"	-ve			-ve
"Return Analysis" "Risk Adjusted Analysis"	-ve			-ve
"Risk Analysis" "Risk Adjusted Analysis"				-ve
"Non-CBD" "International"				-ve
"CBD" "International"			-ve	
"Office" "Industrial"			-ve	-ve
"Retail" "Residential"				-ve
"Core" "Opportunistic"	-ve			-ve
"Organisational Stability" "Investment Philosophy"				-ve
"Client Needs" "Investment Philosophy"	-ve			

The positive correlation between the factors of the small and large superannuation schemes reflect their low rankings of "Selection of External Fund Managers" and "Investment Style". While no reason can be provided for their low ranking of "Investment Style", the large superannuation schemes mainly invested in direct property not through external fund managers, while the small superannuation schemes were only allowed to invest through external fund managers specified by their Board. Consequently, both did not regard external fund managers as being very important in their decision-making. The lower level of funds held by the small and medium superannuation schemes relative to the large superannuation schemes can explain the positive correlation between their sub-factors. The preference by the medium and large superannuation schemes for "Risk Adjusted Analysis" over "Return Analysis" is one of the main reasons behind the positive correlation between their sub-factors. The small superannuation schemes preferred to use "Return Analysis".

For the factors "Property Type" and "Return Analysis", the average weighting by the small superannuation schemes differed from the average weightings given by the medium and large superannuation schemes. This could be explained by the smaller superannuation schemes having access to a lower level of funds and more restrictive mandates than the larger superannuation schemes. The small superannuation schemes ranked "Property Type" as more important than the medium and large superannuation schemes. The average weight given by the small superannuation schemes to "Property Type" was nearly double the average weight given by the medium and small superannuation schemes. The greater importance of "Property Type" for the small superannuation schemes could be because their mandates require them to only invest in

certain property types. During the interviews, some of the small superannuation schemes commented they only invest in office property and some of the medium and large superannuation schemes commented they invested in both office and retail property. The small superannuation schemes weighted the *“Strategic Decision Making”* sub-factor *“Return Analysis”* higher than one of its other sub-factors, *“Risk Adjusted Analysis”*, while the medium and large schemes weighted it lower. During their interviews, respondents from the large superannuation schemes commented that the lower level of funds held by the smaller superannuation schemes meant they adopted a buy and hold strategy in order to generate a stable return. The large superannuation schemes on the other hand, have a sufficient level of funds to adopt a more active strategy. The sub-group difference for the *“Selection of External Fund Manager”* sub-factor *“Local Experience”* exists between the small and medium superannuation schemes, with the medium superannuation schemes ranking *“Local Experience”* considerably higher than the small superannuation schemes. The requirement by the mandates of the small superannuation schemes to invest in property only through specified external fund managers means that they are unable to choose any external fund manager that they want. So *“Local Experience”* would not be considered to be a major reason for investing through one of the specified external fund managers. The medium superannuation schemes are not as restricted in their choice of external fund managers. The difference in average weighting for the factor *“Investment Style”* existed between the small and medium superannuation schemes. However, no explanation is able to be given for this based on the comments made by the respondents and the literature.

Three of the four factors that were found to be correlated can be specified in the mandate of a superannuation fund. These are *“Property Type”*, *“Investment Style”* and *“Type of Real Estate”*. Investment managers would have to invest in property according to these specifications and could not make their own decisions on these factors. This explains why positive correlations are found between the two factor pairings of *“Property Type”* and *“Investment Style”* and *“Property Type”* and *“Type of Real Estate Vehicle”*. The other factor, *“Strategic Decision Making”*, is one that property investment managers have some control over; they can choose a particular *“Strategic Decision Making”* technique independently of the *“Property Type”* or *“Investment Style”* specified by the fund’s mandate. Consequently, significant negative correlation exists between the factor pairings *“Strategic Decision Making”* and *“Property Type”* and *“Strategic Decision Making”* and *“Investment Style”*. These correlations reflect the considerably higher average weight and ranking given to *“Strategic Decision Making”* over *“Property Type”* and *“Investment Style”*.

There are no significant correlations between the factor pairings for the sub-groups. However, some of the nine sub-factor pairings that showed significant correlation for all twenty superannuation schemes are also significant for the sub-groups. All of the correlations between the sub-group factor pairings are negative. The *“Qualitative Techniques”* sub-factor pairing of *“Personal Judgement”* and *“Industry Comparison”* was significantly negative for the overall sample and all the sub-groups. This reflects the considerably higher weighting that all but one of

the survey respondents give to *“Personal Judgement”* relative to *“Qualitative Techniques”*, due to their preference to make decisions that are different from the other superannuation schemes they are competing with. The overall sample and only the small superannuation schemes show negative correlation for three of the sub-factor pairings, *“Direct Property”* and *“Unlisted Property”*, *“Return Analysis”* and *“Risk Adjusted Analysis”*, and *“Core”* and *“Opportunistic”*. The low level of funds and restrictive mandates of the small superannuation schemes would be behind their selection of unlisted property, return analysis and core over direct property, risk adjusted analysis and opportunistic respectively. While the small superannuation schemes ranked *“Return Analysis”* above the other two *“Strategic Decision Making”* sub-factors, like the medium and large superannuation schemes, their average weight and ranking for *“Risk Adjusted Analysis”* was above those for *“Risk Analysis”*. Risk analysis by itself was not regarded as being useful, due to the difficulty in obtaining a large enough data set required for most risk measures to be suitable. This explains why a significant negative correlation was found in the overall sample between *“Risk Adjusted Analysis”* and *“Risk Analysis”*.

The restrictive mandates of small superannuation schemes require them to invest through external fund managers. However, as they are one of several superannuation schemes investing with the same external fund manager, one of the small superannuation schemes commented that their needs would not be considered, but the investment philosophy of the external fund manager could be similar to theirs. This explains why only the small superannuation schemes displayed significant negative correlation for the *“Selection of External Fund Manager”* sub-factor pairing of *“Client Needs”* and *“Investment Philosophy”*. The higher ranking of the *“Property Type”* sub-factors *“Office”* and *“Retail”* over *“Industrial”* and *“Residential”*, is supported by the significant negative correlation between the sub-factor pairings of *“Office”* and *“Industrial”* and *“Retail”* and *“Residential”* for the overall sample. However, only the sample of large superannuation schemes displays significant negative correlation for one of these, the sub-factor pairing of *“Office”* and *“Industrial”*. This indicates their lack of interest in industrial property over the other property types.

The finding that the rankings of the factors, other than for *“Strategic Decision Making”*, and sub-factors are not consistent across the different size superannuation schemes requires future research. The mandates of the superannuation schemes and the level of funds held by the superannuation schemes have been identified in the surveys as being the main reasons for this finding. The smaller superannuation schemes lack of freedom in decision-making due to their lower level of funds should be investigated to see the impact this has on the return they are able to generate on their property investments relative to the larger superannuation schemes. The factors and sub-factors where significant differences were found to exist between the small, medium and large superannuation schemes should be central to this investigation to see how they can influence the performance of superannuation schemes. In addition, the benefits of investing in direct property instead of indirect property should be investigated. The level of investment by the smaller superannuation schemes in direct property is minimal compared to

that undertaken by the larger superannuation schemes. This investigation will lead to a greater understanding of whether the larger superannuation schemes benefit significantly from their ability to invest in direct property.

The following chapter will review the quantitative results from the AHP process for the property fund managers who were surveyed.

CHAPTER 8

ANALYSIS OF FACTORS AFFECTING PROPERTY INVESTMENT DECISION-MAKING BY PROPERTY FUNDS

Chapter 8 analyses the property fund managers' responses to the AHP survey questions. This will allow the main factors and sub-factors that influence the decision-making by the surveyed property funds to be identified. The responses by the four sub-groups, diversified property funds, retail property funds, office property funds and industrial property funds, will also be analysed to see if significant differences exist between the sub-group responses.

8.1 Consistency

Like the superannuation schemes, there was no negative feedback by any of the fourteen property funds on the relevance of the factors and sub-factors in the survey. As a result, the factors and sub-factors can be viewed as applicable to the decision-making by property funds when investing in property. In order to evaluate whether the pair-wise comparison responses by the property funds are consistent, CR measures are applied to the factor and sub-factor weights. During the interviews, all the respondents seemed to give similar responses to the survey questions. The main difference between the property funds is the type of property they invest in, rather than size and use of asset consultants that were the main differences between the surveyed superannuation schemes. To confirm that their responses were similar, the property fund managers were separated into the following four sub-groups, diversified property fund, retail property fund, office property fund and industrial property fund. Following the analysis of the responses by all of the property fund managers, the responses by each of the sub-groups are analysed.

Table 8.1 lists the factor weight CR measures for all fourteen of the property fund managers. The type of property fund is indicated by the labels diversified (D), retail (R), office (O) and industrial (I). There are eight diversified property fund managers, two retail property fund managers, three office property fund managers and one industrial property fund manager.

Table 8.1 Consistency Ratios for the Fourteen Property Fund Managers

	1	2	3	4	5	6	7	8	9	10
CR	0.18	0.06	0.11	0.25	0.22	0.49	0.12	0.08	0.1	0.07
Type	D	D	O	I	D	O	R	O	R	D
	11	12	13	14						
CR	0.04	0.44	0.06	0.08						
Type	D	D	D	D						

Of the fourteen property fund managers surveyed, two had CRs higher than 40%, two had CRs slightly higher than 20%, and the remaining ten has CRs slightly higher than 10% or less. Four of the fourteen CRs notably exceed Saaty's (1987) recommended 10% threshold. The CRs of the sub-factors for each factor were below 10% for all fourteen of the responding property fund managers¹²². Like the superannuation schemes that were interviewed, it was decided to only use the original responses made by the property fund managers in their first interview. During the interviews, the definition of each factor and sub-factor were clearly explained. Consequently, their original response would be a true representation of their personal judgement.

The average CR of the fourteen property fund managers was 16%. This was regarded as being too high relative to Saaty's (1987) 10% threshold. So it was decided to remove the responses by the two property fund managers whose CR was greater than 40%. One of these was a diversified property fund manager and the other an office property fund manager. Their removal had very little impact on the average weights and ratings given on the factors and sub-factors. The average CR for the remaining twelve property fund managers is 11%, compared to 16% when all fourteen were included.

8.2 Survey Results for the Whole Sample of Property Fund Managers

The AHP survey completed by the twenty superannuation schemes consisted of pairwise comparisons for seven factors and twenty two sub-factors. However, the factors "*Property Type*" and "*Selection of External Fund Manager*" do not apply to all the property funds. "*Property Type*" only applies to the seven property fund managers that manage diversified property funds and invest in several property types. The remaining five only invest in one property type; office, retail or industrial. The property fund managers are the external fund managers of superannuation schemes, so the factor "*Selection of External Fund Manager*" is not relevant to the decision-making of any of the respondents. Consequently, the property fund managers were not asked to provide responses to pairwise comparisons that included the factor "*Property Type*" and its sub-factors "*Industrial*", "*Office*", "*Retail*" and "*Residential*", as well as the factor "*Selection of External Fund Manager*" and its sub-factors "*Understanding of Client Needs*", "*Local Experience*", "*Organisational Stability*" and "*Philosophy and Decision Making*". This reduced the number of factors in the survey from seven to five and the number of sub-factors from twenty two to fourteen. As a result the survey completed by the property fund managers contained ten factor pairwise comparisons and thirteen sub-factor pairwise comparisons.

Of the five factors, the property fund managers rank "*Strategic Decision Making*" as significantly more important than the other four factors. This is consistent with the surveyed superannuation schemes ranking of "*Strategic Decision Making*". However, while both the

¹²² The total number of CRs for the sub-factors is seventy as each of the five factors has sub-factors and there are fourteen respondents.

surveyed superannuation schemes and property funds rank “*Investment Style*” as the more preferred of the remaining four factors and “*Qualitative Techniques*” as their least important factor, they differ in their order of ranking for “*Type of Real Estate Vehicle*” and “*Geographical Location*”. The superannuation schemes rank “*Type of Real Estate Vehicle*” one place above “*Geographical Location*”, while the property funds rank it as one place below. In terms of the fourteen sub-factors, the superannuation schemes ranked “*Risk Adjusted Analysis*” and “*Return Analysis*”, sub-factors of “*Strategic Decision Making*”, and “*Core*” as their three most important sub-factors. The property fund managers also rank these three sub-factors highly, but not in the same order.

8.2.1 Factor Weightings

Table 8.2 provides the mean weightings and rankings, by the twelve property fund managers that were analysed, for the five factors and fourteen sub-factors. The weight for “*Strategic Decision Making*” (30.51%) is close to double that of the other four factors weights. These four factors have very similar weights, with only 1.36% difference between them.

Table 8.2 AHP Weightings for Factors and Sub-factors: 12 Property Funds

Local	Weight %	Rank
<i>Factors</i>		
Strategic Decision Making	30.51	1
Investment Style	17.98	2
Geographical Location	17.67	3
Type of Real Estate Vehicle	17.21	4
Qualitative Techniques	16.62	5
<i>Sub-factors</i>		
Risk Adjusted Analysis	12.54	1
Direct Property	11.42	2
Personal judgement	11.40	3
Core	10.84	4
Return Analysis	10.38	5
CBD	10.29	6
Risk Analysis	7.59	7
Industry Peer Comparison	5.22	8
Non-CBD	5.16	9
Value-added	4.78	10
REITs	3.40	11
Unlisted Property Fund	2.37	12
Opportunistic	2.36	13
International	2.23	14

While the highest ranked factor is clearly “*Strategic Decision Making*”, the ranking order of the remaining four factors does not reflect how close their weights are.

“Investment Style” (17.98%) is the second ranked factor, but its weight is only slightly bigger than the next three, *“Geographical Location”* (17.67%), *“Type of Real Estate Vehicle”* (17.21%), and *“Qualitative Techniques”* (16.62%). The superannuation schemes also rank *“Investment Style”* above *“Geographical Location”*, *“Type of Real Estate Vehicle”* and *“Qualitative Techniques”* (16.62%). However, in terms of the weight size, there is a major difference in how important *“Investment Style”* is regarded by the superannuation schemes and property funds. The property funds give a similar weight to *“Investment Style”*, *“Geographical Location”*, *“Type of Real Estate Vehicle”* and *“Qualitative Techniques”*, while the superannuation schemes weight on *“Investment Style”* is nearly double their weights on the other three. The factor ranking order of *“Type of Real Estate Vehicle”* and *“Geographical Location”* are not the same for the property funds and superannuation schemes. However, the weights on these factors are very close for both the property funds and superannuation schemes, so it is not an issue. The distribution of factor weightings and rankings can be used to separate the AHP results into two levels of importance:

Level 1: Major Importance (>18%) – *Strategic Decision Making* (30.51%)

Level 2: Moderate Importance (<18%) – *Investment Style* (17.98%), *Geographical Location* (17.67%), *Type of Real Estate Vehicle* (17.21%) and *Qualitative Techniques* (16.62%).

The Annual Reports and publicly available information on the surveyed property funds indicate they actively manage their property portfolios to optimise returns over the long run. One of the respondents commented that they are:

“...interested in the property investment opportunities that will give them the best result for their clients”.

This may explain why *“Strategic Decision Making”* was ranked as the most important factor. The clients of the surveyed property funds are superannuation schemes. During their interview, seven of the property funds revealed the number of superannuation schemes that they invested on behalf of. One property fund manager stated that they:

“...only had one client, a very large superannuation scheme”.

The others stated they invested on behalf of 5, 30, 35, 35, 50 and 55 superannuation schemes. Two of the respondents commented that their clients are some of the largest superannuation schemes in Australia. Another commented that superannuation schemes:

“...do not want to have a large number of property fund managers, but prefer to use a few big ones that give them a wide range of choices to select from”.

Several of the respondents commented that superannuation schemes were decreasing their use of advice from asset consultants on what property funds to invest in. One of the diversified property fund managers said it was:

“...only the smaller superannuation schemes that selected the property funds to invest in based on the advice of an asset consultant”.

As the major investment objective of superannuation schemes is to maximise the long-run returns on their investment portfolios with the minimum risk, the *“Strategic Decision Making”* by the property fund managers would focus on this objective. One respondent stated that *“Strategic Decision Making”* was:

“...always undertaken before anything else”.

Another respondent commented that the:

“...property investment teams in some superannuation schemes are too small to have the expertise to make the best property investments”.

Consequently, it would be better for them to invest in property through large property funds.

Another reason why the property fund managers weight *“Strategic Decision Making”* considerably higher than the other factors, is the mandates of their superannuation scheme clients. In Chapter 7, the mandates of the superannuation schemes were said to specify the *“Investment Style”*, *“Type of Real Estate Vehicle”*, and *“Geographical Location”* of the property investments. Two of the property fund managers commented that the mandates determined the strategies that they used when investing in property. Accordingly, they would take into account the specified *“Investment Style”*, *“Type of Real Estate Vehicle”*, and *“Geographical Location”* written in the mandate. The ability for the property fund managers to use *“Qualitative Techniques”* could be determined by the degree of freedom they are allowed by the mandate to use. One property fund manager stated that:

“...the mandates of some of their clients allow them to decide on what property to invest in”.

However, it also reflects the greater use by investors of quantitative factors relative to qualitative factors. Like the respondents from the superannuation schemes, the responding property fund managers ranked *“Qualitative Techniques”* as their least preferred factor.

“Qualitative Technique” and *“Geographical Location”* were the only factors that any of the respondents commented on. Their comments provide reasons for why these two factors were regarded as less important than *“Strategic Decision Making”*. The first reason relates to *“Qualitative Techniques”*. One of the respondents managing a diversified property fund stated that *“Qualitative Techniques”* were overrated as:

“...it is hard to get the correct gut feeling”.

The second reason is provided by two respondents who also manage diversified property funds. They commented that “*Geographical Location*” had very little impact on their decisions. One of these respondents stated that:

“...for their retail property investments, they considered demographics rather than geography”.

For their investments in industrial property they chose target locations, while their investments in office property were in the major cities. One also commented that investing in industrial property was difficult as:

“...most property developers would only lease out industrial property once it was completed and rarely sold it”.

8.2.2 Sub-factor Weightings

The fourteen sub-factor weightings have smaller weightings than the factors. This reflects the greater number of sub-factors compared to the number of factors. There is also a greater dispersion of the sub-factor weightings. Unlike the factor weightings, there is not one sub-factor that has a weighting significantly higher than all the other sub-factors. The highest ranked sub-factor “*Risk Adjusted Analysis*” (12.54%) is only weighted about 1% higher than the next five sub-factors, “*Direct Property*” (11.42%), “*Personal Judgement*” (11.40%), “*Core*” (10.84%), “*Return Analysis*” (10.38%) and “*CBD*” (10.29%). For the remaining eight sub-factors, the difference is considerably greater. “*Risk Adjusted Analysis*” is just over 4% or one third greater than the seventh rated sub-factor “*Risk Analysis*”, double the weight of the next three sub-factors and three times that of the four least important factors. Three levels of importance can be established for the AHP results from the distribution of sub-factor weightings and rankings:

Level 1: Major Importance (>10%) – *Risk Adjusted Analysis* (12.54%), *Direct Property* (11.42%), *Personal Judgement* (11.40%), *Core* (10.84%), *Return Analysis* (10.38%) and *CBD* (10.29%).

Level 2: Moderate Importance (<10% and >4%) – *Risk Analysis* (7.59%), *Industry Peer Comparison* (5.22%), *Non-CBD* (5.16%) and *Value-added* (4.78%).

Level 3: Minor Importance (<4%) – *REITs* (3.40%), *Unlisted Property Fund* (2.37%), *Opportunistic* (2.36%) and *International* (2.23%).

Of the six sub-factors that are regarded as being of Major Importance, two are sub-factors of the highest ranked factor “*Strategic Decision Making*”. These are the highest ranked sub-factor “*Risk Adjusted Analysis*” and the fifth highest ranked sub-factor “*Return Analysis*”. The third sub-factor of “*Strategic Decision Making*”, “*Risk Analysis*”, is regarded as being of Moderate Importance. The ranking order of these sub-factors is consistent with how they were ranked by the surveyed superannuation schemes. However, although “*Risk*

Adjusted Analysis” was ranked as more important than *Return Analysis*” and *Risk Analysis*”, some respondents, like the superannuation scheme respondents, commented on how difficult it was to undertake risk adjusted analysis and risk analysis. This is due to the illiquid nature of property making it difficult to obtain a large enough set of property values.

The second highest ranked sub-factor is *Direct Property*”. This was expected, as one of the criteria for selection of the property fund managers to be surveyed was that they mainly invested in direct property. The two other sub-factors of *Type of Real Estate Vehicle*”, *REITs*” and *Unlisted Property Funds*”, are only regarded as being of Minor Importance. In contrast, the superannuation schemes regarded *Direct property*” to be of Minor Importance and ranked it below *Unlisted Property Fund*”, which was in their Moderate Importance category. This difference in rankings is because the property funds being surveyed are regarded as an *Unlisted Property Fund*” by the surveyed superannuation schemes. In the previous chapter on superannuation schemes, it was discussed how the property portfolios of small and medium superannuation schemes typically consisted of mainly unlisted property funds, as they could not afford to purchase direct property. Three of the property fund respondents commented that superannuation schemes did prefer to invest in direct property, but only the larger superannuation schemes were able to do this. Often the larger superannuation schemes would enter into joint ventures with them to purchase property. They did this as it allowed them to retain control over their investment in the property. Another respondent said that some superannuation schemes:

“...held investments in unlisted property funds that they purchased around the time of the global financial crisis, only because they were unable to get out of them”.

Personal Judgement”, one of the two *Qualitative Technique*” sub-factors, is ranked as the third highest sub-factor. This is consistent with the rankings by the superannuation schemes who ranked *Personal Judgement*” as their fourth most preferred sub-factor. The other sub-factor, *Industry Peer Comparison*”, is ranked and weighted by both the property funds and superannuation schemes as considerably lower than *Personal Judgement*”.

Core”, one of the three sub-factors of *Investment Style*”, is the fourth highest ranked sub-factor and falls in the Major Importance category. The other two sub-factors, *Value-added*” and *Opportunistic*”, are regarded to be of Moderate Importance and Minor Importance, respectively. This is the same ranking order given by the superannuation scheme respondents for the *Investment Style*” sub-factors. However, the superannuation schemes ranked *Core*” as their most important sub-factor, not their fourth. Most of the property fund respondents, particularly those that manage diversified property funds, commented that they only or mainly invested in core property. One of the respondents managing a diversified property fund said that they also:

“...invest in value-added property and opportunistic property depending on the mandate of each client”.

They stated that the:

“...mandates of most of their clients required an investment of 80% to 90% in core property and the remainder in value-added property and/or opportunistic property”.

A respondent managing a retail property fund commented that:

“...they only have one client and the mandate of this client was to invest in direct value-added retail property”.

This involved purchasing poor quality shopping centres and renovating them to improve their quality and hence value.

The last sub-factor regarded as being of Major Importance is “CBD”. This is one of the three “Geographical Location” sub-factors. The other two, “Non-CBD” and “International”, are of Moderate Importance and Minor Importance respectively. “International” being the least important of all fourteen sub-factors. The office property funds commented that they only invest in CBD property, while one of the retail property funds said they only invested in non-CBD property. All the other respondents managing retail property funds commented that they invested in both CBD and non-CBD property. The superannuation scheme respondents also ranked “CBD” above “Non-CBD” and “International”. However, “International” was ranked higher than “Non-CBD”, although the weights on these two sub-factors were very similar. The lower ranking by the property funds of “International” compared to the superannuation schemes could be due to the clients of the property funds being mainly medium and small superannuation schemes. In the previous chapter, it was discussed how the large superannuation schemes were able to invest in direct property both domestic and internationally, rather than through external fund managers, as they had sufficient funds and their own internal investment managers. One property fund manager stated that:

“...only the larger superannuation schemes were able to purchase “International” property themselves, and not through property funds”.

The clients of the property funds, the small and medium superannuation schemes, could have in their mandates directions to invest in Australian CBD and non-CBD property. Consequently, the property funds would not regard “International” as a very important sub-factor.

8.3 Survey Results for Sub-groups Within the Whole Sample of Property Fund Managers

The property funds are now separated into sub-groups based on the property type they invest in; that is diversified, retail, office or industrial property. The rankings and

weightings for these four sub-groups are shown in in Tables 8.3 and 8.4. Seven of the twelve respondents managed a diversified property fund, two managed a retail property fund, two an office property fund and one an industrial property fund. While there are only one or two respondents from the retail, office and industrial property funds, they are some of the largest property funds in Australia. Consequently, their responses may provide an indication of the decision-making by each sub-group. Tables 8.3 and 8.4 show that there is no uniform ranking by the four sub-groups for any of the five factors and fourteen sub-factors.

Table 8.3 AHP Sub-Group Rankings for Factors and Sub-factors

	Diversified (7)	Retail (2)	Office (2)	Industrial (1)	Overall (12)
<i>Factors</i>					
Strategic Decision Making	1	1	2	2	1
Investment Style	4	3	5	1	2
Geographical Location	3	5	1	3	3
Type of Real Estate Vehicle	2	4	3	4	4
Qualitative Techniques	5	2	4	5	5
<i>Sub-factors</i>					
Risk Adjusted Analysis	2	5	4	2	1
Direct Property	1	3	2	4	2
Personal Judgement	5	4	3	10	3
Core	6	6	5	1	4
Return Analysis	3	8	6	6	5
CBD	4	1	1	3	6
Risk Analysis	7	7	7	11	7
Industry Peer Comparison	11	9	10	5	8
Non-CBD	9	1	8	7	9
Value-added	8	12	11	8	10
REITs	10	10	12	14	11
Unlisted Property Fund*	14	10	12	12	12
Opportunistic	12	14	13	8	13
International	13	13	8	13	14

*Significant differences at 5% level exist between the three sub-group weights.

Table 8.4 AHP Sub-Group Weightings for Factors and Sub-factors

	Diversified (7)	Retail (2)	Office (2)	Industrial (1)	Overall (12)
<i>Factors</i>					
Strategic Decision Making	31.63	34.95	23.30	28.20	30.51
Investment Style	17.53	19.15	11.95	30.90	17.98
Geographical Location	17.66	5.15	30.45	17.20	17.67
Type of Real Estate Vehicle	19.43	11.10	18.10	12.10	17.21
Qualitative Techniques	13.74	29.60	16.15	11.70	16.62
<i>Sub-factors</i>					
Risk Adjusted Analysis	12.24	8.27	10.68	16.78	12.54
Direct Property	12.27	12.92	12.92	8.29	11.42
Personal Judgement	9.95	10.09	12.78	3.90	11.40
Core	9.68	8.24	7.64	22.06	10.84
Return Analysis	11.68	7.07	7.15	7.78	10.38
CBD	10.17	13.85	21.74	10.63	10.29
Risk Analysis	7.71	7.97	5.45	3.61	7.59
Industry Peer Comparison	3.80	6.06	3.37	7.80	5.22
Non-CBD	5.07	13.85	4.35	5.11	5.16
Value-added	5.39	2.32	3.02	4.42	4.78
REITs	4.77	2.59	2.59	0.97	3.40
Unlisted Property Fund*	2.34 <i>a</i>	2.59 <i>b</i>	2.59 <i>c</i>	2.83 <i>a,b,c</i>	2.37
Opportunistic	2.47	1.39	1.30	4.42	2.36
International	2.43	2.27	4.35	1.48	2.23

*The sub-group weights for a factor or sub-factor followed by the same letter indicate that there is a significant difference, at the 5% level, between these sub-groups based on the LSD procedure.

8.3.1 Sub-group Factor Weightings

Table 8.3 shows that while “*Strategic Decision Making*” is the highest ranked factor, on average by all the property funds, it is only the highest ranked factor for the diversified property funds and retail property funds. The industrial property fund and office property funds rank it as their second most preferred factor. The mandates of the property fund’s clients, superannuation schemes, were given as a reason why overall the property funds ranked “*Strategic Decision Making*” as their most preferred factor. However, the mandates could also explain why the industrial property fund and office property funds ranked it as their second most preferred factor.

The diversified property funds make up 50% of the survey respondents. Their weight on “*Strategic Decision Making*”, is nearly double that of the weights for the other four factors. The retail property funds also ranked “*Strategic Decision Making*” as their preferred factor, closely followed by “*Qualitative Techniques*”. Their weights on these two factors are at least one third larger than the weights on the remaining three factors. It was not

expected that any investor would rank *“Qualitative Techniques”* so highly. Normally quantitative factors have a bigger influence on decision-making than qualitative factors. All the other sub-groups ranked *“Qualitative Techniques”* as one of their two least preferred factors. Neither of the two respondents from the retail property funds commented on their ranking of *“Qualitative Techniques”*. The industrial property fund ranked *“Strategic Decision Making”* as their second most preferred factor behind *“Investment Style”*. However, their weights on these two factors are very close. The remaining three factors are ranked in the same order as given by the whole sample and their weights are at least half the weights of *“Investment Style”* and *“Strategic Decision Making”*. The two office property funds also ranked *“Strategic Decision Making”* as their second highest ranked factor, but weighted it a lot lower than their preferred factor *“Geographical Location”*. The higher weight on *“Geographical Location”* could be explained by statements made by the respondents from the office property funds that their client’s mandates require them to only invest in CBD property. Consequently, their investment strategies would begin by identifying office property in CBD locations. The three other sub-groups ranked *“Geographical Location”* a lot lower, with the retail property funds ranking it as their least preferred factor. This ranking by the retail property funds could be explained by a comment made by one of the diversified property fund respondents. They commented that:

“...when investing in retail property, they considered demographics rather than geography”.

This is understandable as the demographic profile for a location would determine if the necessary clientele for a shopping centre resided in that location. Consequently, a superannuation scheme’s mandate may not specify certain *“Geographical Locations”* for retail property investments.

8.3.2 Sub-group Sub-factor Weightings

There is some differences in the sub-group rankings of the sub-factors, compared to the rankings by the whole sample. Three major observations can be made. Firstly, the sub-factor that is ranked as most important by the whole sample is not ranked as the most important by any of the sub-groups. Secondly, none of the sub-groups have the same highest ranked sub-factor and, apart from the retail and office property funds, these sub-factors are from different factors. Lastly, the ranking order of the sub-factors for each factor is different across the sub-groups for the three factors *“Strategic Decision Making”*, *“Type of Real Estate Vehicle”* and *“Qualitative Techniques”*.

“Risk Adjusted Analysis” is ranked by the whole sample as their most preferred sub-factor. However, as shown in Table 8.3, the diversified property funds and industrial property fund rank it as their second most preferred sub-factor, the office property funds rank it as their fourth most preferred sub-factor, and the retail property funds rank it as their fifth preferred of the fourteen sub-factors. Although it is not given the top ranking by

any of the sub-groups, they do rank “*Risk Adjusted Analysis*” higher than two thirds of the other sub-factors. Of the three “*Strategic Decision Making*” sub-factors, all the sub-groups rank “*Risk Adjusted Analysis*” higher than the other two, “*Return Analysis*” and “*Risk Analysis*”. They differ in the order they rank “*Return Analysis*” and “*Risk Analysis*”, but rank them close to each other. The diversified property funds, office property funds and industrial fund rank “*Return Analysis*” above “*Risk Analysis*”, while the retail property funds rank “*Risk Analysis*” above “*Return Analysis*”. Two respondents from the diversified property funds commented that the illiquid nature of property made it difficult for them to generate accurate risk measures due to the lack of data. One of them commented that they regard “*Risk Analysis*” and “*Return Analysis*”:

“...as just as important, but considerably more important than *risk adjusted analysis* due to the difficulty in getting an accurate measure for risk adjusted analysis”.

For “*Risk Analysis*”, they do a lot of sensitivity tests, such as worst case/best case and upside/downside, which they argue combined with “*Return Analysis*”, provide a better guide for investment in property than “*Risk Adjusted Analysis*”. The other stated that:

“...they placed more importance on the absolute return and projected return on a property investment over measures of risk”.

With regards to the riskiness of a property investment, a respondent managing a diversified property fund stated that:

“...their clients’ mandates specified how conservative they were allowed to be with respect to risk”.

The number one ranked sub-factors for the sub-groups are “*Direct Property*”, “*CBD*”, “*Non-CBD*” and “*Core*”. “*Direct Property*”, one of the three sub-factors of “*Type of Real Estate Vehicle*”, had been expected to be one of the highest ranked sub-factors, as a criterion for selecting the respondents was that they mainly invested in direct property. However, the only sub-group that ranked “*Direct Property*” as their most preferred sub-factor are the diversified property funds. Nevertheless their weight for “*Direct Property*” is very similar to the weights for their second and third most preferred sub-factors, “*Risk Adjusted Analysis*” and “*Return Analysis*”. The other sub-groups also gave a high ranking to “*Direct Property*”, with the office property funds ranking it as their second most preferred sub-factor, the retail property funds as their third most preferred sub-factor and the industrial fund as their fourth most preferred sub-factor. All the sub-groups rank “*Unlisted Property Fund*” and “*REITs*”, the other two sub-factors of “*Type of Real Estate Vehicle*” considerably lower than “*Direct Property*”. They are among their four least preferred sub-factors. This was expected as they were chosen because they mainly invested in direct property.

The office property funds rank “*CBD*” as their most preferred sub-factor while the retail property funds rank “*CBD*” and “*Non-CBD*” equally as their most preferred sub-factor; reflecting the attractiveness of regional retail shopping centres as an investment. These are two of the three “*Geographical Location*” sub-factors. The ranking of “*CBD*” by the office property funds as their most important sub-factor is consistent with their most important factor being “*Geographical Location*”. As explained in section 8.3.1, they only invest in CBD office property. For the retail property funds, “*Geographical Location*” was ranked as their least important factor. Their ranking of two of the sub-factors of their least preferred factor as their most preferred sub-factors is not a contradiction. This is because retail property funds invest in retail property in any location, CBD or non-CBD, as long as the demographics are suitable. All the subgroups ranked the third “*Geographical Location*” sub-factor, “*International*”, in the bottom half of their rankings. In section 8.3.1, the reason for the low ranking of “*International*” was attributed to the majority of clients of property fund managers being small and medium superannuation schemes. The mandates of these superannuation schemes directed their investments to be mainly in domestic property.

“*Core*”, one of the three “*Investment Type*” sub-factors, is recorded as the most important sub-factor for the industrial property fund. They rank and weight it considerably higher than the other two “*Investment Type*” sub-factors, “*Value-added*” and “*Opportunistic*”. This could be due to industrial property investments being regarded as riskier than investing in retail and office property. For example, the industrial sector is constantly changing with innovation, which can mean that existing industrial buildings quickly become poor investments. As a result, industrial property funds will focus on investing in core industrial property to achieve a stable and safer return. Investing in the other two “*Investment Type*” sub-factors, “*Value-added*” and “*Opportunistic*”, would be regarded as being too risky. “*Core*” is ranked by the office property funds as their fifth most preferred sub-factor and the sixth most preferred sub-factor by the diversified property funds and retail property funds. All the sub-groups rank “*Value-added*” and “*Opportunistic*” in the bottom half of the fourteen sub-factors. The industrial property fund gives the same weight and so rank to these two sub-factors. The diversified property funds, retail property funds and office property funds rank “*Value-added*” higher than “*Opportunistic*”. This reflects the mandates of the funds.

The whole sample rank “*Personal Judgement*” considerably higher than the other “*Qualitative Technique*” sub-factor “*Industry Peer Comparison*”. However, the industrial property fund ranks “*Personal Judgement*” considerably lower than “*Industry Peer Comparison*”, while the other sub-groups rank these two sub-factors in the same order as the whole sample. During their interview, the industrial property fund did not provide a reason for preferring “*Industry Peer Comparison*” over “*Personal Judgement*”.

8.4 Statistical Analysis of the Property Fund Manager Sub-groups

The rankings and weights for the factors and sub-factors are not the same across the four sub-groups. Section 8.3 discusses reasons why these differences could occur. The AHP rankings for the diversified, retail, office and industrial property funds will now be tested, using ANOVA and LSD, to see whether statistical differences exist across the sub-groups. Spearman’s rank order correlation will then be used to test whether any relationships exist between the pairings of the five factors and pairings of fourteen sub-factors.

8.4.1 ANOVA and LSD Test

Tables 8.5 and 8.6 show the one-way ANOVA results for the five factors and fourteen sub-factors, respectively, across the diversified, retail, office and industrial property funds. The test null hypothesis will be whether the means of the factor or sub-factor for these four groups are identical¹²³. According to the F-tests and p-values, the only significant difference is for the sub-factor “*Unlisted Property Fund*”, a sub-factor of “*Type of Real Estate Vehicle*”. A LSD test is undertaken on the means of the importance given by each of the sub-groups for “*Unlisted Property Fund*”. Table 8.7 shows significant differences exist between the means of the office property funds and industrial property fund, retail property funds and industrial property fund and diversified property funds and the industrial property fund. During their interviews, most of the property fund managers commented that they only or mainly invested in “*Direct Property*”, so their level of investment in “*Unlisted Property Funds*” would be minimal. However, the industrial property fund’s weight on “*Unlisted Property Fund*” is more than double the weights for any of the other sub-groups.

Table 8.5 ANOVA (One-Way) for Factors

Factors		Sum of Squares	df	Mean Square	F-value	P-value
Type of real estate	Between Groups	0.01368	3	0.00456	0.13674	0.93529
	Within Groups	0.26680	8	0.03335		
	Total	0.28049	11			
Geographical location	Between Groups	0.06403	3	0.02134	1.45064	0.29891
	Within Groups	0.11771	8	0.01471		
	Total	0.18175	11			
Strategic decision making	Between Groups	0.01574	3	0.00525	0.57736	0.64597
	Within Groups	0.07274	8	0.00909		
	Total	0.08848	11			
Investment Style	Between Groups	0.02438	3	0.00812	1.68330	0.24699
	Within Groups	0.03862	8	0.00482		
	Total	0.06300	11			
Qualitative Techniques	Between Groups	0.04195	3	0.01398	1.94792	0.20051
	Within Groups	0.05743	8	0.00718		
	Total	0.09939	11			

*The *F-crit* is 4.0662 for all the factors.

¹²³ A factor or sub-factor will be the dependent variable and the independent variable a sub-group.

Table 8.6 ANOVA (One-Way) for Sub-factors

Factors		Sum of Squares	df	Mean Square	F	P-value
Direct Property	Between Groups	0.01779	3	0.00593	0.50343	0.69049
	Within Groups	0.09428	8	0.01178		
	Total	0.11208	11			
REITs	Between Groups	0.04167	3	0.01389	0.88393	0.48935
	Within Groups	0.12571	8	0.01571		
	Total	0.16738	11			
Unlisted property fund	Between Groups	0.01143	3	0.00381	6.49629	0.01545
	Within Groups	0.00469	8	0.00058		
	Total	0.01613	11			
CBD	Between Groups	0.06866	3	0.02288	2.76468	0.11120
	Within Groups	0.06623	8	0.00827		
	Total	0.13489	11			
Non-CBD	Between Groups	0.09774	3	0.03258	3.22709	0.08225
	Within Groups	0.08076	8	0.01009		
	Total	0.17850	11			
International	Between Groups	0.00556	3	0.00185	0.91048	0.47782
	Within Groups	0.01629	8	0.00203		
	Total	0.02185	11			
Return Analysis	Between Groups	0.01494	3	0.00498	0.10594	0.95426
	Within Groups	0.37609	8	0.04701		
	Total	0.39104	11			
Risk Analysis	Between Groups	0.03257	3	0.01085	0.56704	0.65203
	Within Groups	0.15318	8	0.01914		
	Total	0.18576	11			
Risk Adjusted Analysis	Between Groups	0.04867	3	0.01622	0.21390	0.88403
	Within Groups	0.60677	8	0.07584		
	Total	0.65544	11			
Core	Between Groups	0.04815	3	0.01605	0.42739	0.73888
	Within Groups	0.30046	8	0.03755		
	Total	0.34862	11			
Value-added	Between Groups	0.03779	3	0.01259	0.58871	0.63937
	Within Groups	0.17118	8	0.02139		
	Total	0.20897	11			
Opportunistic	Between Groups	0.00223	3	0.00074	0.2109	0.88608
	Within Groups	0.02825	8	0.00353		
	Total	0.03048	11			
Personal judgement	Between Groups	0.16426	3	0.05475	2.48698	0.13471
	Within Groups	0.17613	8	0.02201		
	Total	0.34040	11			
Industry peer comparison	Between Groups	0.16426	3	0.05475	2.48698	0.13471
	Within Groups	0.17613	8	0.02201		
	Total	0.34040	11			

*The *F-crit* is 4.0662 for all the sub-factors.

Table 8.7 Least Significant Difference Test of Significant Factors

Unlisted Property Fund (MSE =0.00059)				
	Diversified	Retail	Office	Industrial
Mean	0.121	0.143	0.143	0.234
N	7	2	2	1
Diversified	0	0.04491	0.04491	0.05988*
Retail	0.04491	0	0.05601	0.06860*
Office	0.04491	0.05601	0	0.06860*
Industrial	0.05988*	0.06860*	0.06860*	0

This LSD is less than the difference between the two sub-group means. The t-critical value for $\alpha=0.05$ with degrees of freedom of 8 is 2.3060.

Two-way ANOVA is now used to test the null hypothesis that the means for the property funds will be identical and the means of the factors or sub-factors will also be identical. The two-way ANOVA findings are shown in Tables 8.8 and 8.9 for the factors and sub-factors respectively. Two-way ANOVA could not be undertaken on one of the sub-groups, industrial property funds, as only one industrial property fund was surveyed.

Table 8.8 ANOVA (Two-Way) for Factors*

Factors		Sum of Squares	df	Mean Square	F-value	P-value	F-crit
Overall	Factors	0.16701	4	0.04175	2.576150	0.05051	2.58366
	Funds	0.00000	11	0.00000	0.00000	1	2.01405
	Error	0.71313	44	0.01620			
	Total	0.880143	59				
Diversified	Factors	0.13041	4	0.03260	1.66847	0.190073606	2.77629
	Funds	0.00000	6	0.00000	0.00000	1	2.508189
	Error	0.46896	24	0.01954			
	Total	0.59937	34				
Office	Factors	0.04067	4	0.01017	0.71364	0.62417	6.38823
	Funds	0.00000	1	0.00000	0.00000	0.99801	7.70865
	Error	0.05698	4	0.01425			
	Total	0.09765	9				
Retail	Factors	0.12322	4	0.03081	4.50059	0.08713	6.38823
	Funds	0.00000	1	0.00000	0.00000	0.99713	7.70865
	Error	0.02738	4	0.00684			
	Total	0.15061	9				

**Null hypothesis is rejected when F-value is greater than F-crit and the P-value is less than the alpha of 0.05.*

Table 8.9 ANOVA (Two-Way) for Sub-factors

Factors		Sum of Squares	df	Mean Square	F-value	P-value	F-crit
Overall	Sub-Factors	6.24513	13	0.480394	21.93385*	0.00000	1.78917
	Funds	0.00002	11	0.00000	0.00009	1	1.85617
	Error	3.13198	143	0.02190			
	Total	9.37714	167				
Diversified	Sub-Factors	3.40786	13	0.262143	9.45298*	0.00000	1.84776
	Funds	0.00002	6	0.00000	0.00013	1	2.217234
	Error	2.16304	78	0.02773			
	Total	5.57093	97				
Office	Sub-Factors	1.65867	13	0.127560	25.42371*	0.00000	2.576927
	Funds	0.00000	1	0.00000	0.00000	0.999999	4.667192
	Error	0.06524	13	0.00502			
	Total	1.72391	27				
Retail	Sub-Factors	1.15842	13	0.08912	7.83151*	0.00036	2.57692
	Funds	0.00000	1	0.00000	0.00000	0.99861	4.66719
	Error	0.14792	13	0.01138			
	Total	1.30634	27				

*Null hypothesis is rejected when F-value is greater than F-crit and the P-value is less than the alpha of 0.05.

Table 8.8 shows that the null hypothesis holds for the factors, while Table 8.9 shows that this is not the case for the sub-factors. A difference exists between the means of the overall sample, the diversified property funds, the retail property funds and the office property funds and the means of all fourteen sub-factors. This can be expected as the overall sample and these three sub-groups have dissimilar rankings on most of the sub-factors. The investment by diversified property funds in a range of property types and each property fund investing in accordance with their client's mandates could be behind this. As the office property funds and retail property funds specialise in one property type, the decision-making by the diversified property funds would be broader than that of the specialist property funds.

8.4.2 Correlation Between Factors and Sub-factors for the Property Fund Managers

The Spearman's rank-order correlation coefficients will now be used to identify if there are any relationships between the factors and sub-factors. The Spearman's rank-order correlation coefficients, r , for each pair of factors and sub-factors, for the twelve property funds, are shown in Tables 8.10 and 8.11. Fifteen factor pairs and one hundred and five sub-factor pairs, were created by the five factors and fourteen sub-factors respectively.

Table 8.10 Factor Spearman's Correlation (All 12 Property Funds)

	<i>Type of real estate</i>	<i>Geographical location</i>	<i>Strategic decision</i>	<i>Investment Style</i>	<i>Qualitative techniques</i>
Type of real estate	1				
Geographical location	-0.329	1			
Strategic decision	-0.497	-0.280	1		
Investment Style	-0.091	-0.112	0.343	1	
Qualitative techniques	-0.098	-0.455	-0.077	-0.182	1

*Correlation is significant at the 0.05 level (two-tailed) as when $N-2 = 10$ the critical values are -0.648 and 0.648.

For the whole sample of twelve property funds, the critical values for the correlation coefficients being significant are when r is less than -0.648 or greater than 0.648. Of the ten pairs of non-identical factor pairs in Table 8.10, nine show negative correlation and one positive correlation. However, none of these factor pairings are found to be significantly correlated at the 95% level. In the previous chapter, one of these ten factor pairs, "Strategic Decision Making" and "Investment Style", was regarded by the superannuation schemes to have significant moderate negative correlation. In Table 8.10, this factor pair for the property funds is shown to be positively correlated, but not at a significant level, so it will not be discussed.

Table 8.11 shows that of the ninety nine non-identical sub-factor pairs, six pairs are significantly correlated at the 95% level. Two of these pairs are not from the same factor, so cannot be reasonably discussed. The remaining four pairs from the same factor are listed below:

- Very strong negative correlation
 - "Return Analysis" and "Risk Adjusted Analysis" ($r = -0.80$)
 - "Core" and "Value-Added" ($r = -0.91$)
 - "Personal Judgement" and "Industry Peer Comparison" ($r = -0.91$)
- Strong negative correlation
 - "CBD" and "Non-CBD" ($r = -0.79$)

Table 8.11 Sub-factor Spearman's Correlation (All 12 Property Funds)

	<i>Direct property</i>	<i>REITs</i>	<i>Unlisted property fund</i>	<i>CBD</i>	<i>non-CBD</i>	<i>International</i>	<i>Return</i>	<i>Risk</i>	<i>Risk adjusted</i>	<i>Core</i>	<i>Value-added</i>	<i>Opportunistic</i>	<i>Personal judgement</i>	<i>Industry peer comparison</i>
Direct property	1													
REITs	-0.06	1												
Unlisted property fund	0.63	-0.38	1											
CBD	0.10	-0.31	0.30	1										
non-CBD	0.36	0.07	0.22	-0.79	1									
International	-0.36	0.60	-0.55	0.15	-0.53	1								
Return	-0.35	0.10	-0.34	-0.08	-0.15	0.16	1							
Risk	0.43	-0.02	-0.10	0.04	0.02	0.06	0.31	1						
Risk adjusted	0.28	-0.08	0.42	0.05	0.18	-0.27	-0.80	-0.64	1					
Core	0.55	-0.30	0.73	0.19	0.20	-0.55	-0.52	0.01	0.43	1				
Value-added	-0.39	0.52	-0.79	-0.29	-0.17	0.63	0.49	0.09	-0.39	-0.91	1			
Opportunistic	-0.19	0.34	0.08	-0.36	0.36	-0.20	0.32	-0.13	-0.11	-0.03	-0.07	1		
Personal judgement	0.26	0.39	-0.07	0.01	-0.03	0.29	-0.10	0.01	0.14	-0.31	0.45	-0.26	1	
Industry peer comparison	-0.12	-0.31	0.30	0.07	0.06	-0.27	0.04	-0.13	0.06	0.36	-0.52	0.41	-0.91	1

*Correlation is significant at the 0.05 level (two-tailed) as when N-2 = 10 the critical values are -0.648 and 0.648.

Two of the four pairs that show significant correlation for the property funds also showed significant correlation for the superannuation schemes. These pairs are “*Return Analysis*” and “*Risk Adjusted Analysis*” and “*Personal Judgement*” and “*Industry Peer Comparison*”. The very strong negative correlation between the “*Strategic Decision Making*” sub-factors, “*Return Analysis*” and “*Risk Adjusted Analysis*”, supports the preference by the property fund managers to either use “*Return Analysis*” or “*Risk Adjusted Analysis*”. As discussed in section 8.2.2, the managers would need to take into account both return and risk when assessing a property investment. Consequently, a risk-adjusted measure would be more useful than using only a measure of return or risk. However, like respondents from the superannuation schemes, several respondents from the property funds commented on the difficulties encountered in accurately estimating the risk of a property investment compared relative to measuring return. The very strong negative correlation found between “*Personal Judgement*” and “*Industry Peer Comparison*”, the two sub-factors of “*Qualitative Techniques*”, was expected. The majority of property funds, like the superannuation schemes, gave a considerably stronger weighting to “*Personal Judgement*” than “*Industry Comparison*”. The property funds are looking to perform better than each other to achieve the highest return for their superannuation scheme clients. So they would want to make decisions that they felt would be able to do this, rather than only comparing their performance to other property funds.

Unlike the property funds, the superannuation schemes did not display significant correlation for the remaining two pairs, “*Core*” and “*Value-Added*” and “*CBD*” and “*Non-CBD*”. The property funds have very strong negative correlation for the “*Investment Style*” sub-factors, “*Core*” and “*Value-Added*”. This is because all but one of the property funds ranked “*Core*” considerably higher than “*Value-Added*” followed by “*Opportunistic*”. The varying fund was a retail property fund that focused on investing in mainly “*Value-Added*” property. The strong negative correlation found between the “*Geographical Location*” sub-factors “*CBD*” and “*Non-CBD*” can be explained by the office property funds mainly investing in CBD property, while the retail property funds mainly invested in non-CBD property.

8.4.2.1 Correlation and the Sub-groups

Correlation coefficients across the sub-groups were only able to be calculated for the seven diversified property funds, as the other sub-groups were made up of only one or two property funds. The critical values for when the seven diversified property fund’s Spearman’s correlation coefficients are significant are r between -1 and 1. As shown in Tables 8.12 and 8.13, no significant correlation was found between any of the diversified property funds’ factor or sub-factor pairings.

Table 8.12 Factor Spearman's Correlation (7 Diversified Property Funds)

	<i>Type of real estate</i>	<i>Geographical location</i>	<i>Strategic decision making</i>	<i>Investment Style</i>	<i>Qualitative techniques</i>
Type of real estate	1				
Geographical location	-0.388	1			
Strategic decision making	-0.679	0.078	1		
Investment Style	-0.850	-0.034	0.687	1	
Qualitative techniques	0.060	-0.303	-0.410	-0.037	1

**Correlation is significant at the 0.05 level (two-tailed) as when $N-2 = 5$ the critical values are -1 and 1.*

Table 8.13 Sub-factor Spearman's Correlation (7 Diversified Property Funds)

	<i>Direct property</i>	<i>REITs</i>	<i>Unlisted property fund</i>	<i>CBD</i>	<i>non-CBD</i>	<i>International</i>	<i>Return</i>	<i>Risk</i>	<i>Risk adjusted</i>	<i>Core</i>	<i>Value-added</i>	<i>Opportunistic</i>	<i>Personal judgement</i>	<i>Industry peer comparison</i>
Direct property	1													
REITs	-0.154	1												
Unlisted property fund	0.727	-0.384	1											
CBD	0.364	-0.308	0.301	1										
non-CBD	0.154	0.070	0.217	-0.790	1									
International	-0.259	0.601	-0.552	0.154	-0.531	1								
Return	-0.419	0.105	-0.336	-0.084	-0.154	0.161	1							
Risk	0.224	-0.021	-0.098	0.042	0.021	0.063	0.315	1						
Risk adjusted	0.399	-0.084	0.419	0.049	0.182	-0.273	-0.804	-0.643	1					
Core	0.643	-0.301	0.727	0.189	0.203	-0.545	-0.525	0.007	0.427	1				
Value-added	-0.566	0.517	-0.790	-0.287	-0.168	0.629	0.490	0.091	-0.392	-0.909	1			
Opportunistic	-0.189	0.336	0.084	-0.364	0.364	-0.203	0.322	-0.126	-0.112	-0.028	-0.070	1		
Personal judgement	0.266	0.392	-0.070	0.007	-0.028	0.294	-0.098	0.014	0.140	-0.315	0.454	-0.259	1	
Industry peer comparison	-0.049	-0.315	0.301	0.069	0.056	-0.273	0.042	-0.126	0.063	0.364	-0.517	0.406	-0.909	1

**Correlation is significant at the 0.05 level (two-tailed) as when N-2 = 5 the critical values are -1 and 1.*

8.4.3 Correlation between Sub-groups

To test for relationships between the rankings given by the four sub-groups, Spearman’s correlation coefficients are calculated for the factors and sub-factors across the sub-groups. They are presented in Table 8.14 below.

Table 8.14 Factor Spearman’s Correlation between Sub-Groups

Sub-Groups	Factors	Sub-factors
Diversified versus Retail	0.10	0.67
Diversified versus Office	0.60	0.83
Diversified versus Industrial	0.30	0.64
Retail versus Office	-0.30	0.80
Retail versus Industrial	-0.30	0.52
Office versus Industrial	-0.10	0.58

Strong correlation ($0.6 \leq r < 0.8$) for the factors is only found between the diversified property funds and office property funds. Their lower ranking on “*Investment Style*” and higher ranking on “*Type of Real Estate Vehicle*”, relative to the retail property funds and industrial fund, could be behind this strong positive correlation. As the diversified property funds invest in office, retail and industrial property, it is impossible to analyse from their survey responses whether their decisions differ across the different property types. Consequently, no reasons behind this correlation can be provided.

While there is only correlation between two of the sub-groups for their factor rankings, correlation exists for the sub-factors across all the four sub-groups. The level of correlation varies between the sub-groups. Very strong positive correlation ($0.8 \leq r < 1$) exists between the diversified property funds and office property funds and the retail property funds and office property funds. For the diversified property funds and retail property funds and the diversified property funds and industrial property fund, there is strong positive correlation ($0.6 \leq r < 0.8$). Moderate positive correlation ($0.4 \leq r < 0.6$) is found between retail property funds and industrial property funds and office property funds and industrial property fund. This indicates that for the sub-factors, there is a degree of similarity in the decision-making by all four sub-groups.

8.5 Summary of AHP Findings for the Property Fund Managers

The decision-making by the surveyed property fund managers is very similar to the superannuation schemes, in terms of the importance of the factors they consider. Like the surveyed superannuation schemes, they rank “*Strategic Decision Making*” as their most important factor. This reinforces the importance that property investors place on achieving the highest return on their investments, while at the same time taking into account the level of risk. However, there are some differences in how important they regard the sub-factors. This can be attributed to three characteristics of the surveyed property funds. Firstly, they

have to invest in property in accordance with the mandate of their client, a superannuation scheme. Secondly, they mainly invest in direct property. Thirdly, just over half of the property fund respondents are diversified property funds, while the others specialise in investing in either retail, office or industrial property. The diversified property funds are similar to superannuation schemes in that they invest in more than one property type. As the surveyed property fund managers are external fund managers of superannuation schemes and some only invest in one property type, they did not answer questions on two of the seven factors, “*Property Type*” and “*Selection of External Fund Managers*”, and the fourteen sub-factors covered by these two factors, that were included in the survey completed by the superannuation schemes.

Table 8.15 and Table 8.16 list the mean weightings and rankings, respectively, for the twenty superannuation schemes and twelve property funds. While the ranking order of the five factors by the property funds is similar to that of the superannuation schemes, it is not identical. Both the property funds and superannuation schemes rank “*Strategic Decision Making*” as their most important factor, but the ranking of the remaining four factors by the property funds is slightly different to that of the superannuation schemes. However, the property funds give very similar weights to these four factors and they are close to half the weight of “*Strategic Decision Making*”. So even though their ranking order differs from that of the superannuation schemes, the closeness of their weights implies their rankings on the four factors are similar. A reason for the closeness of the weights for the property funds, could be the restrictions placed on them by the mandates of the superannuation schemes that they are investing in property for. These mandates can control their decisions on “*Investment Style*”, “*Geographical Location*”, “*Type of Real Estate Vehicle*” and their ability to use “*Qualitative Techniques*”. As a result the property funds do not regard these four factors as being very important in their decision-making, as they have little control over them.

Table 8.15 AHP Weightings for the 20 Superannuation Schemes and 12 Property Funds

	Superannuation	Property
<i>Factors</i>		
Strategic Decision Making	24.43	30.51
Selection of External Fund Manager	16.55	<i>na</i> *
Investment Style	16.52	17.98
Property Type	14.22	<i>na</i>
Type of Real Estate Vehicle	9.89	17.21
Geographical Location	9.62	17.67
Qualitative Techniques	8.98	16.62
<i>Sub-factors</i>		
Core	9.77	10.84
Risk Adjusted Analysis	9.45	12.54
Return Analysis	8.68	10.38
Personal Judgement	6.62	11.40
Risk Analysis	6.30	7.59
Investment Philosophy	5.79	<i>na</i>
Retail	5.53	<i>na</i>
CBD	4.86	10.29
Office	4.67	<i>na</i>
Unlisted Property Fund	4.52	2.37
Organisational Stability	4.44	<i>na</i>
Local Experience	4.42	<i>na</i>
Value-added	4.11	4.78
Direct Property	2.86	11.42
Opportunistic	2.65	2.36
Industrial	2.53	<i>na</i>
International	2.52	2.23
Industry Peer Comparison	2.36	5.22
REITs	2.31	3.40
Non-CBD	2.25	5.16
Client needs	1.90	<i>na</i>
Residential	1.50	<i>na</i>

**Non-applicable (na) as the factor or sub-factor was not included in the property fund survey questionnaire.*

Table 8.16 AHP Rankings for the 20 Superannuation Schemes and 12 Property Funds

	Superannuation	Property
<i>Factors</i>		
Strategic Decision Making	1	1
Selection of External Fund Manager	2	na*
Investment Style	3	2
Property Type	4	na
Type of Real Estate Vehicle	5	4
Geographical Location	6	3
Qualitative Techniques	7	5
<i>Sub-factors</i>		
Core	1	4
Risk Adjusted Analysis	2	1
Return Analysis	3	5
Personal Judgement	4	3
Risk Analysis	5	7
Investment Philosophy	6	na
Retail	7	na
CBD	8	6
Office	9	na
Unlisted Property Fund	10	12
Organisational Stability	11	na
Local Experience	12	na
Value-added	13	10
Direct Property	14	2
Opportunistic	15	13
Industrial	16	na
International	17	14
Industry Peer Comparison	18	8
REITs	19	11
Non-CBD	20	9
Client needs	21	na
Residential	22	na

*Non-applicable (na) as the factor or sub-factor was not included in the property fund survey questionnaire.

Three of the four most important sub-factors for the property funds and superannuation schemes are the same. These are “*Risk Adjusted Analysis*”, “*Personal Judgement*” and “*Core*”. The property funds include “*Direct Property*” as one of their four most important four sub-factors. This is expected, as a criterion for being surveyed, was that the property fund mainly invested in direct property. This was not the case for the superannuation schemes who rank “*Direct Property*” as their fourteenth sub-factor. Both rank the sub-factor “*Return Analysis*” highly, with the superannuation schemes ranking it as their fourth highest sub-factor and the property funds as their fifth highest. The importance

of *“Risk Adjusted Analysis”* and *“Return Analysis”* to both the superannuation schemes and property funds, supports their ranking of *“Strategic Decision Making”* as their most important factor, as these are sub-factors of that factor. The higher ranking of *“Risk Adjusted Returns”* over *“Return Analysis”* by the property funds is consistent with the rankings by the superannuation schemes, and in contrast to previous surveys on institutional investors that found return analysis was more preferred. The superannuation schemes rank *“Core”* as their most important sub-factor, while the property funds rank it as their fourth most important. The slightly lower ranking by the property funds could be because, while the mandates of the superannuation schemes require them to invest in core property, the focus of the property funds is investing in direct property that will provide the best return with the minimal amount of risk.

The ranking order of the sub-factors by both the property funds and the superannuation schemes are the same for three of the five factors, *“Strategic Decision Making”*, *“Qualitative Techniques”* and *“Investment Style”*. For the other two factors, *“Type of Real Estate Vehicle”* and *“Geographical Location”*, the difference in sub-factor ranking order is due to the surveyed property funds mainly investing in direct property and the majority of their clients being small and medium superannuation schemes. Their focus on direct property is shown in their ranking of *“Direct Property”* as the most important sub-factor of the factor *“Type of Real Estate Vehicle”*, followed by *“REITs”* and then *“Unlisted Property Funds”*. The superannuation schemes rank *“Unlisted Property Fund”* above *“Direct Property”* and *“REITs”*. This is because only large superannuation schemes have sufficient funds to invest in direct property. The majority of Australian superannuation schemes are not large enough, so they need to invest in property through property funds. The level of funds held by superannuation schemes can also explain why for the factor *“Geographical Location”*, the superannuation schemes rank *“International”* above *“Non-CBD”*, while the property funds rank *“Non-CBD”* above *“International”*. The higher level of funds held by the larger superannuation schemes, compared to the medium and smaller superannuation schemes, allows their internal investment managers to invest in property overseas. The property funds being surveyed would mainly be investing in domestic CBD and non-CBD property as directed by their clients, the small and medium superannuation schemes.

During the surveys, the responses by the sub-groups appeared to be similar. However, one-way ANOVA and LSD tests found that for one of the factors, *“Unlisted Property Fund”*, statistically significant differences existed between the responses made by the industrial property fund and the diversified property funds, the industrial property fund and the retail property funds, and the industrial property fund and the office property funds. No explanation can be provided for these significant differences. However, most of the diversified property funds, retail property funds and office property funds commented that they only invest in direct property, while the industrial property fund did not make comments on their level of investment in direct property or unlisted property funds. The

dissimilarity of the decision-making by the property funds is supported by two-way ANOVA. It found that the responses made by the overall sample, diversified property funds, office property funds and retail property funds on the sub-factors differed. This could be explained by the diversified property funds decision-making being broader than that of the property funds that specialise in one property type, and the need for each property fund to invest in accordance to their client’s mandates.

Spearman’s rank order correlation was not found to exist for any of the factor pairings. However, as shown in Table 8.17, statistically significant negative correlation was found for four of the sub-factor pairings from the same factor.

Table 8.17 Statistically Significant Correlation between Sub-factor Pairings

Sub-factor pairing	Overall
<i>“Return Analysis” “Risk Adjusted Analysis”</i>	-ve
<i>“Core” “Value-Added”</i>	-ve
<i>“Personal Judgement” “Industry Peer Comparison”</i>	-ve
<i>“CBD” “Non-CBD”</i>	-ve

Like the superannuation schemes, negative correlation exists between the *“Return”* and *“Risk Adjusted Analysis”* and *“Personal Judgement”* and *“Industry Peer Comparison”*. This reflects the strong preference by the property funds to use *“Risk Adjusted Analysis”* rather than *“Return Analysis”* and *“Personal Judgement”* rather than *“Industry Peer Comparison”*. The negative correlation between the other two sub-factor pairings reflects the specialisation of the property sub-groups. The investment by one of the retail property funds in only value-added is behind the negative correlation between the *“Core”* and *“Value-Added”* pairing. The negative correlation between *“CBD”* and *“Non-CBD”* can be attributed to the office property funds investing in CBD and retail property funds investing in non-CBD. Correlation between any of the factors or sub-factors for the sub-groups could only be tested for on the seven diversified property funds. The other three sub-groups were made up of only one or two property funds, samples too small to do correlation tests on. No statistically significant correlation was found for the diversified property funds factor pairings and sub-factor pairings.

The similar ranking by the property funds and superannuation schemes of some of the factors, reflects the role played by property fund managers to act on behalf of the superannuation schemes. The final chapter of this thesis will attempt to use the research findings of this and the previous chapters, to expand on the current understanding and knowledge of the strategic decision-making by superannuation schemes when investing in property, as well as also viewing these factors and sub-factors through a property fund manager’s lens as further validation of the property investment decision-making process.

CHAPTER 9

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Chapter 9 provides a summary of the research, along with conclusions on the findings and the overall contribution of this research. It points out the limitations of the research, as well as the importance of future research into property investment decision-making.

9.1 Introduction

Property has become a key asset class in the investment portfolios of pension funds globally. Its low correlation with other asset classes (e.g. equity and fixed income) allows its inclusion to decrease the risk exposure of the total asset portfolio. Furthermore, the unique characteristics of property, that is its large size, heterogeneity and illiquidity, make it suitable as a long-term investment. This is the type of investment Australian superannuation schemes, like overseas pension funds, find attractive as their liabilities are long-term. The liabilities being the payouts to scheme members once they reach retirement age. Consequently, investing in property assists the superannuation scheme in matching the terms of its asset portfolio and liabilities. The large size of a property investment makes it an expensive asset to invest in. However, Australian superannuation schemes AUM, and so their property AUM, has substantially increased over the last few decades. Two main forces behind this increase are positive returns on invested assets and the introduction of compulsory superannuation by the Australian government in 1992. This means they have sufficient funds to invest in property, either direct property or indirect property.

As the characteristics of property are very different to that of other asset classes, the strategic decision-making used for property investments will be different to the strategic decision-making when investing in other asset classes. Limited research has been undertaken on property investing by institutional investors. The aim of this thesis is the advancement of knowledge on decision-making by superannuation schemes when including property in their total asset portfolio. Superannuation schemes need to ensure the unique characteristics of their property investment are capable of generating stable and profitable long-run returns.

This chapter will provide a brief summary of the main findings in the previous chapters and their ability to answer the research question of “What are the current criteria used by institutional investors when investing in property?”. Conclusions on the research objectives will be provided, along with the contributions to knowledge

made by the thesis research. The chapter will finish with suggested areas of future research and concluding remarks.

9.2 Summary

The main findings related to the research question are presented in chapters 7 and 8. These chapters use AHP to identify key criteria that have major influences on the property investment decision-making by institutional investors. The criteria are represented in a Value Tree hierarchy made up of factors and sub-factors associated with the factors. Chapter 7 detects several factors and sub-factors that have a major influence on the decision-making and management by Australian superannuation schemes when they invest in property. As superannuation schemes often invest in property through unlisted wholesale property funds, the decision-making by the property funds should reflect the superannuation schemes investment mandate. The major factors and sub-factors that influence the decision-making by property fund managers are identified in Chapter 8. Table 9.1 summarises the factors and sub-factors identified by the survey respondents as being the “Most Important” in influencing property investment decision-making.

Table 9.1 Most Important Factors and Sub-factors*

	Superannuation Schemes	Property Funds
<i>Factors</i>		
Strategic Decision making	X	X
<i>Sub-factors</i>		
Core	X	X
Risk-Adjusted Analysis	X	X
Return Analysis	X	X
Direct Property		X
Personal Judgement		X
CBD		X

* “x” indicates that the factor or sub-factor is regarded as being “most important”.

Chief investment officers or property investment managers from twenty Australian superannuation schemes were surveyed on the relative importance of seven factors and twenty two sub-factors that influence their decision-making. Earlier surveys identified two of the factors, “*Property Type*” and “*Geographical Location*”, as being the most important decision-making factors. However, the survey responses by the Australian superannuation schemes contradict this. Analysis in Chapter 7 of the survey responses disclosed that “*Strategic Decision Making*” was considerably more important than the other decision-making factors. The need for a superannuation scheme to achieve a stable high return on its investments over the long run, with the minimum exposure to risk, justifies this finding. The survey respondents did indicate that “*Property Type*”, like two of the other factors,

“Selection of External Fund Manager” and *“Investment Style”*, had some importance but at a moderate level. *“Geographical Location”*, along with *“Type of Real Estate Vehicle”* and *“Qualitative Techniques”* were regarded as being of minor importance in decision-making.

Three of the twenty two sub-factors, *“Core”*, *“Risk-Adjusted Analysis”* and *“Return Analysis”*, were regarded by the superannuation schemes as being relatively more important than the other sub-factors. They are sub-factors of *“Investment Style”* and *“Strategic Decision Making”*, two of the more preferred factors. *“Core”* was regarded by the superannuation schemes as being the most important sub-factor. The strong preference for *“Core”* over the other sub-factors of *“Investment Style”*, *“Value-added”* and *“Opportunistic”*, reflects the mandates of the surveyed superannuation schemes. Their mandates required that their property portfolio only contain core or mainly core. The riskiness of value-added and opportunistic property was not regarded as being very appropriate to meet the long term stable returns required by the superannuation schemes. *“Risk-Adjusted Analysis”* and *“Return Analysis”* are sub-factors of the most important factor *“Strategic Decision Making”*. *“Risk-Adjusted Analysis”* had a slightly higher weighting than *“Return Analysis”*. This is a major change from earlier surveys; they found that institutional investors were considerably more concerned about the return on property investments than their risk. The focus by the superannuation schemes, in the current environment, when making decisions on property investment is to combine risk and return analysis, rather than focusing only on the property investment’s potential return.

The survey responses made by the small, medium and large superannuation schemes differed for all the factors and sub-factors, apart from *“Strategic Decision Making”* and *“Core”*. Statistically significant differences were found to exist for two factors, *“Property Type”* and *“Investment Style”*, and two sub-factors *“Return Analysis”* and *“Local Experience”*. The differences for *“Property Type”*, *“Return Analysis”* and *“Local Experience”* can be explained by comments made by the survey respondents. However, no explanation can be provided for the sub-group differences for *“Investment Style”*. The respondents acknowledged that smaller superannuation schemes had more restrictive investment mandates, than larger superannuation schemes, and were directed by their Board to use external investment managers recommended by selected asset consultants. In addition, the larger superannuation schemes had access to a substantially larger level of funds than the smaller superannuation schemes. This means the larger superannuation schemes could afford to have an internal investment management team that had the freedom to invest in direct property and joint property ventures. The greater freedom that the large and medium superannuation schemes have in selecting property investments explains why statistical differences exist between them and the small superannuation schemes for the factor *“Property Type”*. The large and

medium superannuation schemes have enough funds to diversify and invest in office, retail, industrial and residential property. The small superannuation schemes do not, so mainly invest in office and retail. The relatively lower level of funds held by the small superannuation schemes is also why statistically significant sub-group differences existed for the most preferred sub-factor of *“Strategic Decision Making”*. The small superannuation schemes tend to adopt a buy and hold strategy which is why they preferred to use *“Return Analysis”* over *“Risk-Adjusted Analysis”*. The medium and large superannuation schemes held sufficient funds to invest in property using a more active strategy and so preferred *“Risk-Adjusted Analysis”*. A significant statistical difference exists between the small superannuation schemes and medium superannuation schemes for the *“Selection of External Fund Manager”* sub-factor *“Local Experience”*. This is because the small superannuation schemes are required to use the external fund managers recommended to them by Board selected asset consultants. Consequently, they would be less concerned with the external fund manager’s local experience than the medium superannuation schemes. Medium superannuation schemes have more freedom in their selection of external fund managers and sufficient funds to invest in a wide range of locations. Consequently, they can invest in property through external fund managers that have that local experience, in locations they have little knowledge about but regard as potentially profitable. No statistically significant differences were found for *“Local Experience”* between the large superannuation schemes and the other sub-groups.

The surveyed property fund managers are external investment managers of institutional investors, such as the superannuation schemes. Consequently, during their interview survey, they were not asked questions on two of the seven factors and associated eight sub-factors that related to their role as an external investment manager. As a result, the survey responses by the twelve property fund managers are on the relative importance of five factors and fourteen sub-factors. *“Strategic Decision Making”* was regarded as significantly more important than the other factors, which is consistent with the surveyed superannuation schemes ranking of *“Strategic Decision Making”*. This common finding supports the degree of importance that institutional investors place on maximising the return on their investments in property with the minimum exposure to risk.

Like the superannuation schemes, the property fund managers regarded the three sub-factors, *“Core”*, *“Risk-Adjusted Analysis”* and *“Return Analysis”*, as being of major importance. However, they also indicated that *“Direct Property”*, *“Personal Judgement”* and *“CBD”* were of major importance. The high ranking of *“Direct Property”* reflects that the surveyed property fund managers were selected as they mainly invest in direct property. *“Personal Judgement”* is one of the two *“Qualitative Technique”* sub-factors. The superannuation schemes regarded *“Personal Judgement”* to be of moderate importance. Both the superannuation schemes and

property fund managers considered “*Industry Peer Comparison*”, the other “*Qualitative Technique*” sub-factor, as being of minor importance. The greater importance placed on “*Personal Judgement*” by the property fund managers could indicate they have greater expertise and knowledge on property investments than some of the superannuation schemes. That is why the superannuation schemes are investing in property through the property funds. The major importance of “*CBD*” is supported by comments made by the office property funds that they only invested in CBD while the retail property funds commented that they invest in both CBD and non-CBD. The superannuation schemes regarded “*CBD*” as only being of moderate importance and “*non-CBD*” and “*International*” as being of minor importance. However, most of the superannuation schemes, like the property funds, commented that they only invested in “*CBD*” and any “*non-CBD*” investments were in regional shopping centres. In addition, the property fund managers ranked “*Risk-Adjusted Analysis*” as the most important sub-factor rather than “*Core*”. This ranking inconsistency by the superannuation schemes and property fund managers could be because the surveyed property fund managers were following the directions of their client’s mandates. As the mandates directed them to mainly invest in core, they would be more concerned with ensuring the core property investments achieved an attractive risk-adjusted return. The property fund managers preference for “*Risk-Adjusted Analysis*” over “*Return Analysis*” is in agreement with the superannuation schemes preferences. The survey responses of the property fund managers were also analysed in terms of sub-group responses. The sub-groups being based on the property type they invested in, that is diversified, retail, office and industrial. Whilst differences were found to exist between the sub-group rankings for all the factors and sub-factors, a statistical significant difference only existed for the “*Type of Real Estate Vehicle*” sub-factor “*Unlisted Property Fund*”. This occurred for the industrial property fund against all the other sub-groups. No explanation for this difference between the sub-groups can be provided.

9.3 Conclusions Covering Research Objectives

While answering the research question, conclusions on the following research objectives were made.

9.3.1 Investigate the Level of Investment in Property by Australian Superannuation Schemes.

Chapter 2 summarises the current property investment by Australian superannuation schemes. Compulsory superannuation in Australia and favourable investment returns has seen the AUM held by Australian superannuation schemes increase from \$321 billion in 1997 to \$2.3 trillion in 2017. The strategic allocation to property is generally 7% to 9% of the total asset portfolio. The property portfolios of

the superannuation schemes have greater exposure to indirect property than direct property. This is due to many of the schemes having insufficient funds to only invest in direct property. Only the larger Australian superannuation schemes have enough funds to include direct property in their portfolios. The smaller superannuation schemes only invest in indirect property through unlisted property funds and listed property securities funds.

9.3.2 Illustrate, Using Descriptive Case Studies, the Current Asset Allocation by Pension Funds to Property, both in Australia and Globally.

Descriptive case studies in Chapter 3 on ten Australian superannuation schemes reveal that on average in 2017, they allocated 7.9% of their AUM to property. Their allocations ranged from 6.2% to 13.5%. Seven of the ten case studies are on large and medium size superannuation schemes that are ranked globally by Willis Towers Watson as one of the 300 largest retirement funds in the world. The three smaller superannuation schemes are unranked. Regardless of their size, the majority of members of each of the ten superannuation schemes contribute to the scheme's default accumulation scheme. The strategic property target ranges for the default accumulation scheme being 0% to 15%, 0% to 20% or 0% to 25%, with the strategic target allocation to property being midway or at the lower end of the range. The strategic target allocations to property and strategic property target ranges for all ten of the superannuation schemes have been unchanged for several years.

The property portfolios of the ten Australian superannuation schemes mainly consist of domestic core retail and core office property. Any investment in overseas property is mainly through unlisted property funds or listed property. Only the larger superannuation schemes, such as AustralianSuper, have the capacity to effectively enter the direct property market both locally and overseas. Some of the superannuation schemes did invest in industrial and/or residential property. However, the level of investment in these property types was minimal. Seven of the superannuation funds invest in direct property, but their property portfolios mainly contain indirect property. For the larger superannuation schemes, the indirect property is in the form of joint ventures, while for the others it is unlisted property funds. There is very little investment in listed property. The three smallest superannuation schemes only invested in property through external investment managers, while the seven larger superannuation funds used a combination of internal investment managers and external investment managers.

The property allocation strategies adopted by ten overseas pension funds are compared in Chapter 4 to the strategies adopted by the Australian superannuation schemes. Two similarities and four differences were identified. The similarities are that overseas pension funds and Australian superannuation schemes have made

little change to their property asset allocation for several years and they mainly invest in core retail and core office property. The differences can be attributed to eight of the ten overseas pension funds being substantially larger than the Australian superannuation schemes. This provides the overseas pension funds with the ability to invest most of their property portfolios in direct property, both domestically and overseas. Furthermore, they can afford to use in-house management and property expertise and not rely on investing in property through external investment managers. On average, the ten overseas pension funds allocated 9% of their AUM to property in 2017, with their property allocations ranging from 2.6% to 16.4%. This is a higher average allocation and a wider range than for the ten Australian superannuation schemes. Publicly available information was only accessible on strategic property target allocation for six of the pension funds and on strategic property target ranges for three of the pension funds. So a comparison of the strategic allocations will not be made.

9.3.3 Identify the Potential Factors and Sub-factors That Could Be Used by Institutional Investors When Deciding on the Level of Property to Include In Their Portfolio of Investments.

Findings from previous surveys discussed in Chapter 5 on institutional investors and their property investment decision-making were used to identify the factors and sub-factors. Advice from two academics, who publish extensively on property investment, was used to decide on which of these factors and sub-factors to include in the thesis survey. Seven factors were included in the survey, *“Type of Real Estate Vehicle”*, *“Geographical Location”*, *“Property Type”*, *“Strategic Decision Making”*, *“Investment Style”*, *“Selection of External Fund Manager”* and *“Qualitative Techniques”*. Twenty two sub-factors accompanied the seven factors, *“Direct Property”*, *“REITs”*, *“Unlisted Property Fund”*, *“CBD”*, *“Non-CBD”*, *“International”*, *“Industrial”*, *“Office”*, *“Retail”*, *“Residential”*, *“Return Analysis”*, *“Risk Analysis”*, *“Risk-Adjusted Analysis”*, *“Core”*, *“Value-added”*, *“Opportunistic”*, *“Understanding of Client Needs”*, *“Local Experience”*, *“Organisational Stability”*, *“Philosophy/decision-making”*, *“Personal Judgement”* and *“Industry Peer Comparison”*.

9.3.4 Determine the Main Factors and Sub-Factors, Via a Survey of Institutional Property Investors, Which Influence Their Decision-making on Property Investment.

The AHP survey of the superannuation schemes identified *“Strategic Decision Making”* as being considerably more important than the six other factors in their decision-making. Three of the sub-factors, *“Core”*, *“Risk-Adjusted Analysis”* and *“Return Analysis”*, were identified as being more important than the other nineteen sub-factors. *“Core”* was ranked as the most important sub-factor followed by *“Risk-Adjusted Analysis”* and then *“Return Analysis”*. Property fund managers used by

superannuation schemes as external investment managers were also surveyed. Their AHP survey responses indicate they regard “*Strategic Decision Making*”, like the superannuation schemes, as their most preferred factor when making decisions on property investment. They also regard “*Core*”, “*Risk-Adjusted Analysis*” and “*Return Analysis*” as three of the four most important sub-factors. However, they rank “*Risk-Adjusted Analysis*” above “*Core*” and “*Return Analysis*”.

9.3.5 Use the Survey Findings to Extend the Body of Knowledge on Property Investment by Institutional Investors.

The contribution of the survey findings to the body of knowledge is discussed in the next section.

9.4 Contribution to Body of Knowledge

The first contribution that this thesis makes to the existing body of knowledge is the in-depth analysis it provides on property investment by Australian superannuation schemes. The analysis shows that the level of property investment by superannuation schemes has been steadily increasing over the last decade. Most of this investment has been in domestic core retail and core office property in the form of indirect property. Their strategic property allocation and strategic property allocation ranges were found to have changed very little over the last few years. The largest pension funds in countries overseas were found to be considerably larger than Australian superannuation schemes. Consequently, they invest more in overseas direct property with a preference for core retail and core office property.

The extension that the thesis makes on the findings from previous survey research on property investment decision-making by institutional investors is the second contribution. Earlier surveys identified that the main factors used by institutional investors when investing in property were “*Property Type*” and “*Geographical Location*”. This thesis finds that “*Strategic Decision Making*” is now substantially more important than other factors, including “*Property Type*” and “*Geographical Location*”, when superannuation schemes invest in property. It also found that “*Risk-Adjusted Analysis*” is regarded as more important than “*Return Analysis*”. Previous surveys had found institutional investors mainly used “*Return Analysis*”.

The last contribution is the examination by the thesis on decision-making by sub-groups of the survey participants. The superannuation schemes were placed in sub-groups according to their size. Statistically significant differences were found between the sub-groups for two of the factors, “*Property Type*” and “*Investment Style*”, and two of the sub-factors, “*Return Analysis*” and “*Local Experience*”. These differences were seen to arise from the smaller superannuation schemes being

subject to more restrictive investment mandates and having access to a lower level of funds than the larger superannuation schemes. The sub-groups of surveyed property fund managers were formed based on the property type they invested in. The only statistically significant difference between the responses for the sub-groups was for one sub-factor, "*Unlisted Property Fund*". The diversified, retail and office property funds commented that they only invested in direct property, while the industrial property fund made no comment.

9.5 Areas of Future Research

There is limited research on property investment decision-making by institutional investors. This thesis successfully addressed the research question of "What are the current criteria used by institutional investors when investing in property?", in terms of superannuation schemes in Australia. Whilst doing the survey research, areas for potential future research were identified.

The significant importance of "*Strategic Decision Making*" over the other factors for both the superannuation schemes and property funds, requires further research. The reasons for "*Strategic Decision Making*", such as the long-term investment goals of institutional investors, should be explored to identify their degree of importance in property investment decision-making. In addition, research should be undertaken on the "*Strategic Decision Making*" sub-factors of "*Risk-Adjusted Analysis*", "*Risk Analysis*" and "*Return Analysis*". Technological innovation has meant that more advanced quantitative measures can now be used in decision-making. However, the unique characteristics of property mean that the most appropriate quantitative measures to use when doing these three types of analysis on property are different to those used on other asset classes, such as equity and fixed-income. Research on the usage of various quantitative measures by different sized superannuation schemes and different types of property funds should be undertaken. Analysis of the preferred return, risk and risk-adjusted returns measures would reveal the relative importance of these measures in decision-making on property investments.

The unexpected finding that decision-making by the small, medium and large superannuation schemes was not consistent for most of the factors and sub-factors also requires future research. The lower degree of freedom that small superannuation schemes have when investing in property needs to be investigated. This difference in level of freedom between the sub-groups could lead to considerably different returns on property investments being made by the sub-groups. Research on the levels of investment in direct property and indirect property by small, medium and large superannuation schemes will be an essential component of this investigation. The large superannuation schemes have the ability to invest in

direct property, while the small and medium schemes typically are only able to invest in property funds. This research will generate a greater understanding of the benefits of investing in either direct or indirect property.

9.6 Concluding Remarks

Superannuation is an important source of retirement income in Australia. The other sources are personal saving and for eligible recipients, a government funded pension. The aging population in Australia saw the introduction of compulsory superannuation by the government in 1992, to ensure retirees do not need to rely only on the government funded pension for retirement income. The compulsory nature of superannuation and its need to provide retirement income means it is essential that superannuation schemes generate attractive positive returns on the contributions made by members. Consequently, their strategic decision-making needs to ensure that this will occur. The substantial growth in AUM held by superannuation schemes over the last decade makes an understanding of this decision-making even more significant.

Managed funds now recognise property to be a key asset to include in their investment portfolio. In 2017, the average asset allocation to property by superannuation schemes was 8.2% of their property portfolio. Using AHP, the research in this thesis highlights the degree of importance that different factors and sub-factors had in the decision-making by Australian superannuation schemes when investing in property. The ranking of *“Strategic Decision-Making”* as considerably more important than the other factors indicates that currently a major focus of property investment by superannuation schemes is to construct a diversified property portfolio that can generate the highest return possible; as well as a stronger strategic focus to their property investment activities.

The limitations of the research in terms of the small sample size and the survey being undertaken over a six-month time frame do not weaken the research findings; particularly given the stature of the superannuation schemes and property funds who participated in the survey and AHP analysis. AHP has proven to be suitable for small sample sizes and the interview surveys strengthened the findings. Comments made by the respondents provided valuable feedback on the decision-making by institutional investors. While the surveys were undertaken over six months, the responses to the survey questions reflected the decision-making by the respondents over the last few years. The continued growth of the superannuation sector in Australia and the need to generate reliable returns for Australian workers further reflects the ongoing importance of this research into property investment decision-making. It also reflects the increasing importance of superannuation

schemes as institutional investors in Australia and the importance of property in its different styles as a key component in their mixed-asset portfolios.

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APPENDICES

Appendix 1 – Survey Script

Questionnaire on Decision Making in Property Investment by Superannuation Funds

Survey on Property Asset Allocation Decisions

The questions in this survey allow an assessment to be made of factors and sub-factors that can influence the decisions made when investing in property. The factors and sub-factors were chosen based on previous research undertaken on asset allocation selection and property investment. There are 7 factors and between 2 and 4 sub-factors for each of these factors. The questions involve pair-wise comparisons of the relevant importance of the factors and sub-factors.

Please indicate the degree of importance between the two factors or sub-factors in each question. The following glossary of terms and degree of importance rankings will assist you in deciding on the relevant importance.

Glossary of terms	
Factor/Sub-factor	Definition
1. <i>Type of real estate vehicle</i>	
a. Direct property	Physical real estate
b. Real estate investment trusts (REITs)	Property trusts traded on the stock exchange
c. Unlisted property fund	Property fund not traded on the stock exchange
2. <i>Geographical location</i>	
a. Central business district (CBD)	Central district of a city where there is a concentration of retail and office buildings.
b. Non-central business district (non-CBD)	Suburban area of a city where there is less concentration of retail and office buildings.
c. International	Property in overseas locations.
3. <i>Property type</i>	
a. Industrial	Warehouses/distribution centres, manufacturing space and mechanical workshop.
b. Office	Professional and business offices.
c. Retail	Individual stores and shopping centres.
d. Residential	Land where residential housing dominates.
4. <i>Strategic decision making</i>	
a. Return analysis	Use of measures, such as direct capitalisation rate or initial yield; return on initial equity investment; internal rate of return; and net present value.
b. Risk analysis	Use of measures, such as sensitivity analysis; scenario analysis; and asset beta
c. Risk adjusted analysis	Use of measures, such as Sharpe ratio; Treynor ratio; and Sortino ratio
5. <i>Investment style</i>	

a. Core	Selection of property that has stable predictable returns and is held for the long-term. The investment profile will be low leverage and low return/risk.
b. Value-added	Selection of property whose value will increase due to predictable future returns arising from events such as buying property at a lower price than the replacement cost, renovations, subdivisions and rezoning. The investment profile will be moderate leverage and moderate return/risk
c. Opportunistic	Selection of property that has the potential to increase in value but at a higher level of risk than the other two styles. The investment profile will be high leverage and high return/risk.
6. Selection of external fund manager	
a. Manager's understanding of client needs	The managers understanding of the return and risk goals of the client and the constraints they face in achieving these goals.
b. Manager's local experience	The manager's historical property investment in the local area.
c. Fund's organisational stability	The degree of stability will be supported by factors such as the history and structure of the manger's organisation; employee turnover; and significant increases/decreases in their number of clients.
d. Investment philosophy and decision-making process	Philosophy and decision-making used when selecting investments.
7. Qualitative techniques	
a. Personal judgement	Making decisions based on personal opinion and previous experience.
b. Industry peer comparison	Making decisions based on decisions made by other property investors.

Comparison between Factors and Sub-factors

The following survey provides a comparison of the relative importance of factors or sub-factors on a scale of 1 to 5. 1 indicates the factors or sub-factors are of equal importance while 5 indicates one has absolute importance over the other.

Please identify the factor or sub-factor that you consider being more important and circling the number under that factor or sub-factor that indicates its degree of importance relative to the other factor or sub-factor.

Degree of importance	Description
1	Equal importance
2	Slight importance of one over the other
3	Moderate importance of one over the other
4	Strong importance of one over the other
5	Absolute importance of one over the other

First Level Comparison

Question 1

When investing in property which of the following is more important, the type of real estate vehicle or geographical location?

Type of real estate vehicle

5 4 3 2 1

Most important

Geographical location

2 3 4 5

Equal importance

Most important

Question 2

When investing in property which of the following is more important, the type of real estate vehicle or property type?

Type of real estate vehicle

5 4 3 2 1

Most important

Property type

2 3 4 5

Equal importance

Most important

Question 3

When investing in property which of the following is more important, the type of real estate vehicle or strategic decision making?

Type of real estate vehicle

5 4 3 2 1

Most important

Strategic decision making

2 3 4 5

Equal importance

Most important

Question 4

When investing in property which of the following is more important, the type of real estate vehicle or investment style?

Type of real estate vehicle

5 4 3 2 1

Most important

Investment style

2 3 4 5

Equal importance

Most important

Question 5

When investing in property which of the following is more important, the type of real estate vehicle or selection of external fund manager?

Type of real estate vehicle					Selection of external fund manager			
5	4	3	2	1	2	3	4	5
<i>Most important</i>			<i>Equal importance</i>		<i>Most important</i>			

Question 6

When investing in property which of the following is more important, the type of real estate vehicle or qualitative techniques?

Type of real estate vehicle					Qualitative techniques			
5	4	3	2	1	2	3	4	5
<i>Most important</i>			<i>Equal importance</i>		<i>Most important</i>			

Question 7

When investing in property which of the following is more important, geographical location or property type

Geographical location					Property type			
5	4	3	2	1	2	3	4	5
<i>Most important</i>			<i>Equal importance</i>		<i>Most important</i>			

Question 8

When investing in property which of the following is more important, geographical location or strategic decision making?

Geographical location					Strategic decision making			
5	4	3	2	1	2	3	4	5
<i>Most important</i>			<i>Equal importance</i>		<i>Most important</i>			

Question 9

When investing in property which of the following is more important, geographical location or investment style?

Geographical location					Investment Style			
5	4	3	2	1	2	3	4	5
<i>Most important</i>			<i>Equal importance</i>		<i>Most important</i>			

Question 10

When investing in property which of the following is more important, geographical location or selection of external fund manager?

Geographical location**Selection of external fund manager**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 11

When investing in property which of the following is more important, geographical location or qualitative techniques?

Geographical location**Qualitative techniques**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 12

When investing in property which of the following is more important, property type or strategic decision making?

Property type**Strategic decision making**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 13

When investing in property which of the following is more important, property type or investment style?

Property type**Investment style**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 14

When investing in property which of the following is more important, property type or selection of external fund manager?

Property type**Selection of external fund manager**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 15

When investing in property which of the following is more important, property type or qualitative technique?

Property type**Qualitative technique**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 16

When investing in property which of the following is more important, strategic decision making or investment style?

Strategic decision making**Investment style**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 17

When investing in property which of the following is more important, strategic decision making or selection of external fund manager?

Strategic decision making**Selection of external fund manager**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 18

When investing in property which of the following is more important, strategic decision making or qualitative techniques?

Strategic decision making**Qualitative techniques**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 19

When investing in property which of the following is more important, investment style or selection of external fund manager?

Investment style**Selection of external fund manager**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 20

When investing in property which of the following is more important, investment style or qualitative techniques?

Investment style

5

4

3

2

1

2

Qualitative techniques

3

4

5

Most important

Equal importance

Most important

Question 21

When investing in property which of the following is more important, selection of external fund manager or qualitative techniques?

Selection of external fund manager

5

4

3

2

1

2

Qualitative techniques

3

4

5

Most important

Equal importance

Most important

Second Level Comparison

Question 22

When investing in property which of the following is more important, direct property or REITs?

Direct property

5 4 3 2 1 2 3 4 5

Most important

Equal importance

REITs

Most important

Question 23

When investing in property which of the following is more important, direct property or unlisted property fund?

Direct property

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Unlisted property fund

Most important

Question 24

When investing in property which of the following is more important, REITs or unlisted property fund?

REITs

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Unlisted property fund

Most important

Question 25

When investing in property which geographical location is more important, CBD or non-CBD?

CBD

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Non-CBD

Most important

Question 26

When investing in property which geographical location is more important, CBD or international?

CBD

International

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 27

When investing in property which geographical location is more important, non-CBD or international?

Non-CBD

International

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 28

When investing in property which of the following is more important, industrial or office property?

Industrial

Office

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 29

When investing in property which of the following is more important, industrial or retail property?

Industrial

Retail

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 30

When investing in property which of the following is more important, industrial or residential property?

Industrial

Residential

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 31

When investing in property which of the following is more important, office or retail property?

Office**Retail**

5 4 3 2 1 2 3 4 5

*Most important**Equal importance**Most important***Question 32**

When investing in property which of the following is more important, office or residential property?

Office**Residential**

5 4 3 2 1 2 3 4 5

*Most important**Equal importance**Most important***Question 33**

When investing in property which of the following is more important, retail or residential property?

Retail**Residential**

5 4 3 2 1 2 3 4 5

*Most important**Equal importance**Most important***Question 34**

In your strategic decision making when investing in property which of the following is more important, return analysis or risk analysis?

Return analysis**Risk analysis**

5 4 3 2 1 2 3 4 5

*Most important**Equal importance**Most important***Question 35**

In your strategic decision making when investing in property which of the following is more important, return analysis or risk adjusted analysis?

Return analysis**Risk adjusted analysis**

5 4 3 2 1 2 3 4 5

*Most important**Equal importance**Most important*

Question 36

In your strategic decision making when investing in property which of the following is more important, risk analysis or risk adjusted analysis?

Risk analysis**Risk adjusted analysis**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 37

When choosing between investment property strategies which of the following is more important, core or value-added?

Core**Value added**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 38

When choosing between investment property strategies which of the following is more important, core or opportunistic?

Core**Opportunistic**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 39

When choosing between investment property strategies which of the following is more important, value-added or opportunistic?

Value-added**Opportunistic**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 40

When selecting an external fund manager which of the following is more important, the managers understanding of client needs or the manager's local experience?

Understanding of client needs**Local experience**

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 41

When selecting an external fund manager which of the following is more important, the managers understanding of client needs or the funds organisational stability?

Understanding of client needs**Organisational stability**

5 4 3 2 1 2 3 4 5

*Most important**Equal importance**Most important***Question 42**

When selecting an external fund manager which of the following is more important, the managers understanding of client needs or the investment philosophy and decision-making of the manger?

Understanding of client needs**Investment philosophy/decisions**

5 4 3 2 1 2 3 4 5

*Most important**Equal importance**Most important***Question 43**

When selecting an external fund manager which of the following is more important, the managers local experience or the fund's organisational stability?

Local experience**Organisational stability**

5 4 3 2 1 2 3 4 5

*Most important**Equal importance**Most important***Question 44**

When selecting an external fund manager which of the following is more important, the managers local experience or the investment philosophy and decision-making of the manger?

Local experience**Investment philosophy/decisions**

5 4 3 2 1 2 3 4 5

*Most important**Equal importance**Most important*

Question 45

When selecting an external fund manager which of the following is more important, the funds organisational stability or the investment philosophy and decision-making of the manger?

Organisational stability

Investment philosophy/decisions

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Question 46

When investing in property which of the following is more important, personal judgement or industry peer comparison?

Personal judgement

Industry peer comparison

5 4 3 2 1 2 3 4 5

Most important

Equal importance

Most important

Appendix 2 – Participant Information Sheet

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Participant Information Sheet (General)

Project Title: Decision Making in Property Investment by Superannuation Funds

Project Summary: Very little research has been undertaken in Australia and overseas on decision making by fund managers. Furthermore, there has been no research focused on analysing decision making in Australian superannuation funds. A unique characteristic of Australian superannuation funds over other types of managed funds is that since the introduction of the Superannuation Guarantee Charge in 1992 it has been compulsory for people in the Australian workforce to contribute to a superannuation scheme. Consequently over the last two decades whilst the number of superannuation funds has decreased considerably the average size of funds and the average accumulation balance of members have dramatically increased. The large level of funds held with Australian superannuation funds along with the fact that workers are unable to receive superannuation payments prior to retirement means that superannuation funds are one type of institutional investor that would benefit from including property in their investment portfolio (Newell, 2007). The long term nature of superannuation means that superannuation funds will be looking to diversify this large amount of funds across asset classes, such as property, that can achieve high returns over the long run and are not highly correlated. The proposed research will develop a previously unexplored understanding of investment by Australian superannuation funds in property post Global Financial Crisis.

How is the study being paid for?

This is a Higher Degree Research (HDR) project and not sponsored.

What will I be asked to do?

Participate in a short survey that asks for your opinion on the investment in property by superannuation funds and the criteria that is used when selecting the type of property to invest in. Possible respondents will be invited to participate in face-to-face interviews to provide responses to the questionnaire. If interviews cannot take place due to geographical and or time restrictions respondents will be asked to complete the questionnaire and return the completed questionnaire by postal mail.

How much of my time will I need to give?

Around 40 to 50 minutes.

What specific benefits will I receive for participating?

You will not receive any incentive for participating. However, you will be sent a copy of the survey results as soon as they are compiled.

Will the study involve any discomfort for me? If so, what will you do to rectify it?

The study will not involve any discomfort to you.

How do you intend to publish the results?

The privacy of respondents to this survey is assured as while individual responses to survey questions are recorded, only the total responses are analysed. There will be no identification placed on the completed surveys so the identity of the participants cannot be connected to any of the surveys. Only the researchers will have access to the raw data provided by you. The completed surveys will be securely stored for up to seven years until the research is completed and then they will be destroyed.

The findings of the research will be published in a PhD thesis and research publications. The respondents to the survey will not be identifiable in the PhD thesis and research publications. They will be referred to as chief investment officers, investment managers, advisors or others.

Can I withdraw from the study?

Participation is entirely voluntary and you are not obliged to be involved. If you do participate, you can withdraw at any time without giving a reason.

If you do choose to withdraw, any information that you have supplied will be destroyed by Tiffany Hutcheson.

Can I tell other people about the study?

Yes, you can tell other people about the study by providing them with the chief investigator, Professor Graeme Newell's, contact details. They can contact the chief investigator to discuss their participation in the research project and obtain an information sheet.

What if I require further information?

When you have read this information, please contact Tiffany Hutcheson to discuss the research further before deciding whether or not to participate. If you would like to know more at any stage, please feel free to contact:

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What if I have a complaint?

This study has been approved by the University of Western Sydney Human Research Ethics Committee. The Approval number is H10881.

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel +61 2 4736 0229 Fax +61 2 4736 0013 or email humanethics@uws.edu.au.

Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

If you agree to participate in this study, you may be asked to sign the Participant Consent Form.

Appendix 3 – Participant Consent Form

Participant Consent Form

This is a project specific consent form. It restricts the use of the data collected to the named project by the named investigators.

Project Title: Decision Making in Property Investment by Superannuation Funds

I, _____ [name of participant] consent to participate in the research project titled “Decision making in property investment by superannuation funds”.

I acknowledge that:

I have read the participant information sheet and have been given the opportunity to discuss the information and my involvement in the project with the researcher/s.

The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

I consent to participating in a face-to-face interview that will take between 40 to 50 minutes to complete or a phone conversation providing me with information on the survey technique and then completing a questionnaire that will be returned to the researchers by postal mail.

I understand that my involvement is confidential and that the information gained during the study may be published but no information about me will be used in any way that reveals my identity.

I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher/s now or in the future.

Signed:

Name:

Date:

Return Address:

Tiffany Hutcheson
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This study has been approved by the University of Western Sydney Human Research Ethics Committee. The Approval number is: [enter approval number]

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