

GLOBAL REAL ESTATE INVESTMENT: CHARACTERISTICS, OPTIMAL PORTFOLIO ALLOCATION AND FUTURE TRENDS

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ABSTRACT

In response to the increasing importance of real estate investment internationally, we examine the current characteristics of global real estate markets, including the performance of global real estate, the extent of securitisation of institutional grade property around the world and a comparison of the gearing levels in international securitised property markets. We also examine current investor allocations to real estate and demonstrate the portfolio diversification benefits available from increased weightings to securitised property, suggesting an optimal portfolio allocation of 10–20%. We suggest that investors are able to gain even further diversification benefits via the introduction of international real estate allocations to investment portfolios. The paper also provides an analysis of the likely future trends in global real estate.

Keywords: International property investment, securitised real estate, listed property trusts, optimal portfolio allocations, diversification benefits

INTRODUCTION

Moderating equity return expectations, a reduction in government bond issuance and an increased demand for annuity style returns from an ageing population base has led many academics and practitioners to re-examine the benefits of global real estate investment. Given the acceleration of the securitisation of real estate markets, and increased investor focus on international diversification, we predict that global real estate investment will become an increasingly important aspect of portfolio construction. This is expected to see a doubling or tripling in the average global real estate allocation to around 10%+, given expected 5 year IRRs of 10–12% p.a., in line with general equities, but with half the risk.

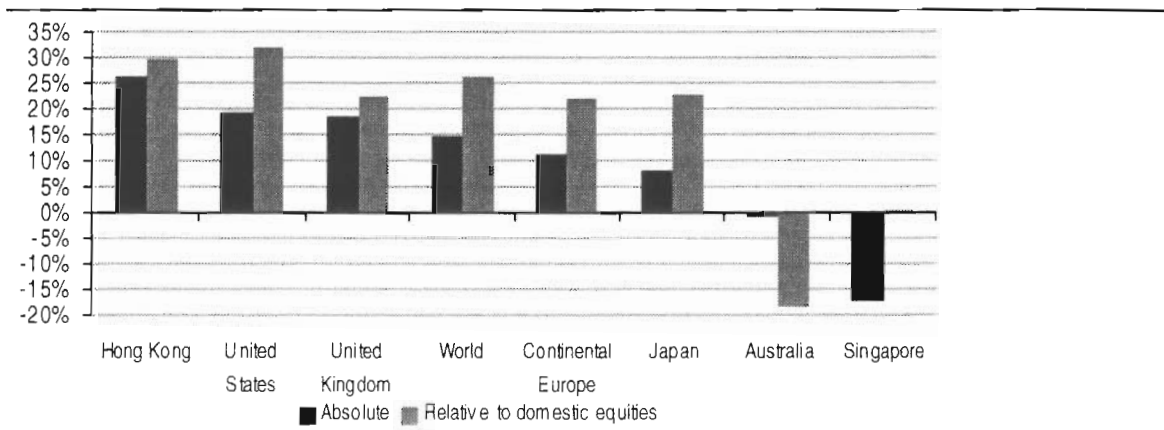
Global real estate markets over the coming decade are expected to experience a continuation of the securitisation of institutional grade real estate (particularly in those markets where securitisation is low) and an ongoing contraction of the discount to Net Asset Value¹ (NAV) in response to increased allocations. We expect many of the structures successfully implemented here to be replicated on a global basis, given the leading position of the Australian securitised real estate sector.

¹ NAV represents the underlying value of the real estate assets of a security

GLOBAL REAL ESTATE PERFORMANCE

Global real estate has outperformed global equities by 11.7% over the past twelve months, with particularly strong returns from the US, Europe and the United Kingdom, all producing 20%+ out-performance². Key drivers have included generally sound real estate fundamentals (despite some weakening of demand in-line with a slow-down in the global economy), falling bond yields and increased defensive allocations. Despite reduced defensive allocations more recently, securitised real estate is also forecast to become increasingly prominent given relative value and REIT inclusion in the S&P500 (Equity Office (EOP) currently with Equity Residential (EQR) proposed and a number of others under consideration). Real estate remains attractive, given low yields on fixed interest investments, a moderating earnings outlook for general equities and generally limited supply in key markets.

Figure 1: 12 Months performance of RE sector relative to Domestic Equity Index (to 8/6/01)



Source: FTSE/UBS Warburg estimates.

The low 0.55 beta of the real estate sector and a 60%+ return from a secure income yield has seen a significant increase in demand for real estate on a global basis over 2001.

To a large degree, this demand has been focused on securitised real estate over direct real estate investment. Securitised real estate offers the additional benefit of liquidity and an increased ability to diversify across a portfolio of properties, often across different property classes and locations.

Looking forward, we believe that moderating return expectations for general equities combined with a greater focus on annuity style returns (given the ageing developed world population base) should continue to drive allocators toward real estate.

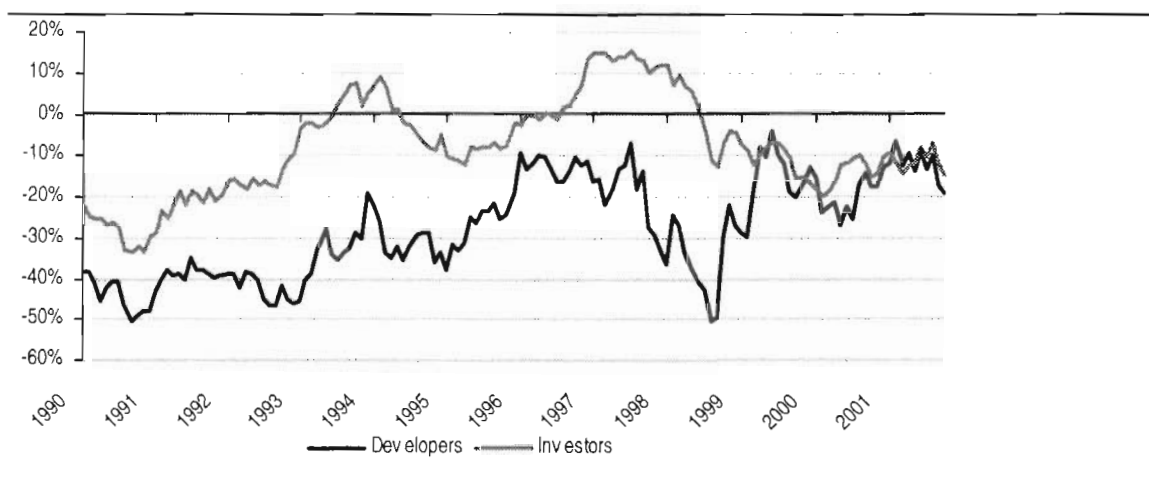
GLOBAL NAV DISCOUNT CONTRACTION

As investors increase weightings to real estate, we expect the current discount to NAV of securitised real estate to contract. NAV in a property context represents the underlying value of the real estate assets of a security. This value will generally be

² Source: FTSE International to 8/6/01

similar to the direct (or unlisted) value of underlying real estate assets less liabilities. When securitised real estate vehicles trade at a discount to NAV, this may reflect investor preferences for other asset classes. For instance, Figure 2 demonstrates that at the beginning of the 1990s, listed real estate vehicles generally traded at relatively high discounts to their NAV. We suggest that this can be explained to a large degree by the property-led recession of this period and the corresponding negative sentiment toward real estate as an asset class. The long-term trend since the early 1990s, however, has clearly been a contraction in this discount, as investors have revisited their allocations to real estate. Privatisations and mergers & acquisitions are accelerating this process.

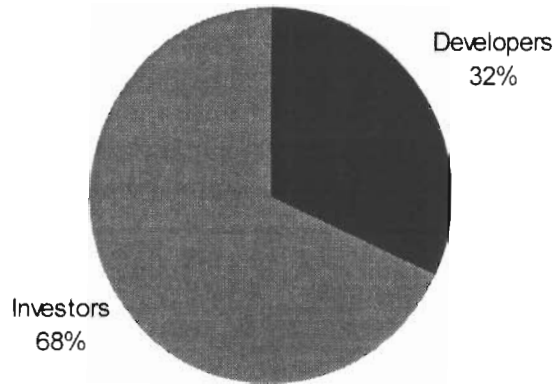
Figure 2: World Average Prem/Disc to NAV for Real Estate Investors and Developers



Source: UBS Warburg estimates.

This trend has been similar for both investors (70% of income from real estate ownership/management, more “passive”, lower beta) and developers (more “active”, higher beta, property constructors and project managers). However, the market has been more willing to price investors closer to NAV in comparison to the developers (with a higher underlying risk profile) which has been emphasised in a slowing economic environment.

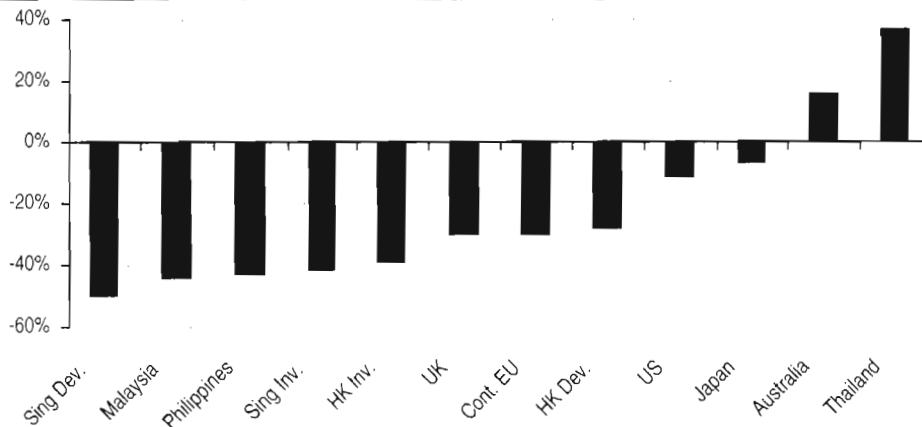
Figure 3: Global Real Estate Universe Split—Investors and Developers



Source: UBS Warburg estimates.

Over the last twelve months, the global NAV discount for investors has continued to narrow from 20% to 15%. Further, larger market capitalised real estate companies are trading at a smaller discount to NAV than the broader listed real estate market, with a –9.2% discount for large investor. This reflects the willingness of investors to pay for liquidity and diversification. This characteristic of listed real estate markets should accelerate the move toward large, international property investment vehicles.

Figure 4: Current discount/premium to NAV



Source: UBS Warburg estimates.

Although Australia appears to trade at a premium to NAV, in reality, if all Listed Property Trust (LPTs) assets were to be sold in direct market transactions, the realised value of these assets would most likely result in the LPTs trading at par or a slight discount to NAV. One of the reasons for the apparent NAV premium for Australian LPTs is the valuation lag inherent in the Australian estimation of NAV. For example, the NAV of Westfield Trust (WFT), Stockland Trust Group (SGP) and General Property Trust (GPT) (38% of the index) are determined by rolling three year valuations. This leads to an understating of the true net asset worth of LPTs, especially in the context of

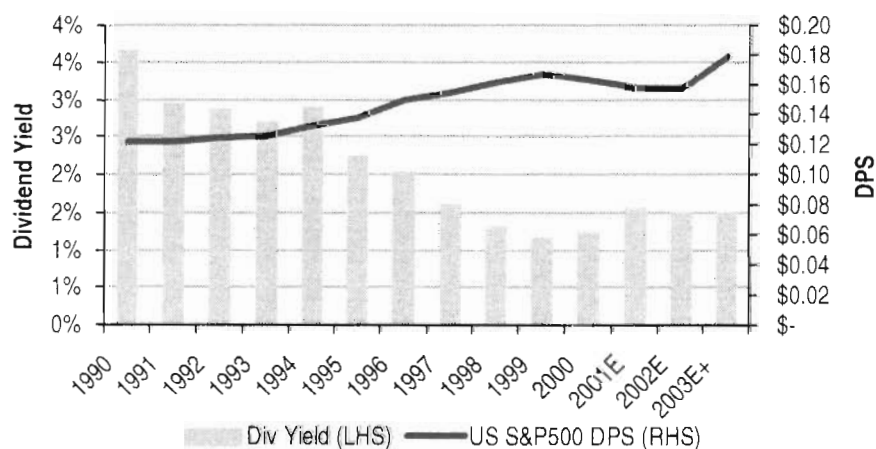
the strong rally in property values over the last three years. In addition, the calculations of NAVs for Australian LPTs are via sworn valuations, in comparison to other countries which in many instances rely on analysts estimation (often updated on a monthly basis).

We expect the price discount to NAV to continue to narrow, with the pricing of the investor sector expected to reach parity with NAV over the next twelve to eighteen months. We predict this NAV contraction to hold over the medium/long term as a consequence of the increased demand for securitised real estate as an investment class. The greatest discount contraction is expected to occur in Europe, the United Kingdom and the United States, with both M&A, privatisation and valuation re-rating being the key drivers.

GLOBAL REAL ESTATE RISK-ADJUSTED RETURN FORECASTS: SUPERIOR RISK ADJUSTED RETURN

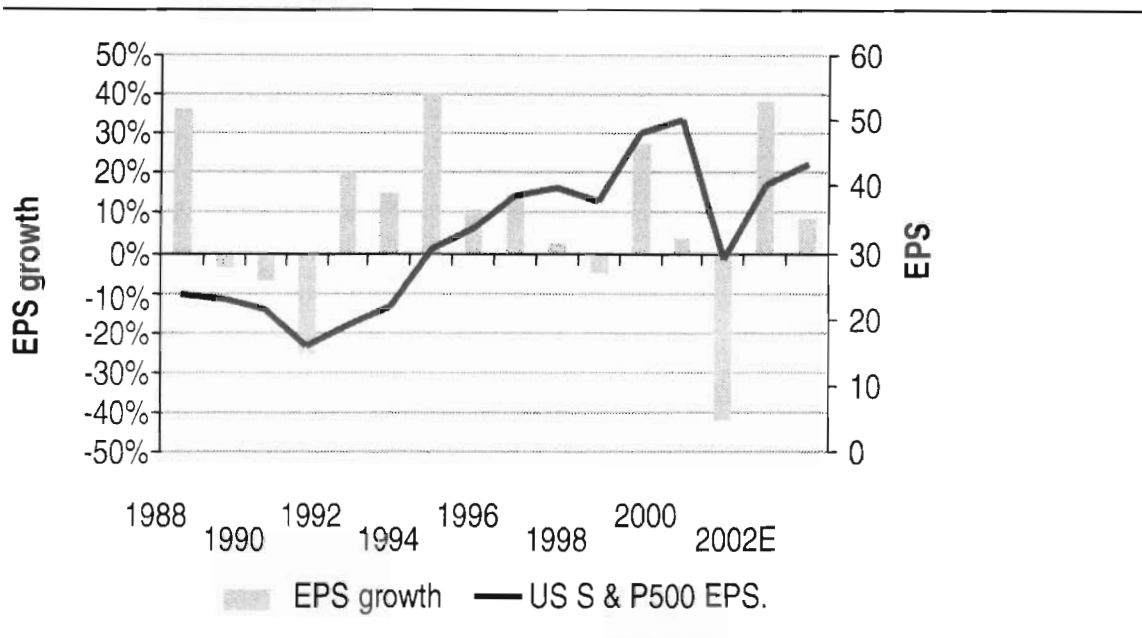
Many commentators are now suggesting a moderation in the average global equities earnings growth to around 8%pa for the US S&P500 over the next ten years, in comparison to 10%pa growth for the last five years. At the time of writing, the dividend yield on equities was only 2% (one of the lowest levels in the last 10 years). Hence, given consensus earnings growth and the current dividend yield, investors can expect a circa 10% equity return over the decade. This excludes PE expansion, given current PEs are around historic highs of around 35x in the US. A little more speculation and optimism could see that figure at 12%—a little more pessimism, down to 8%.

Figure 5: US Equities Dividend Yield



Source: UBS Warburg estimates

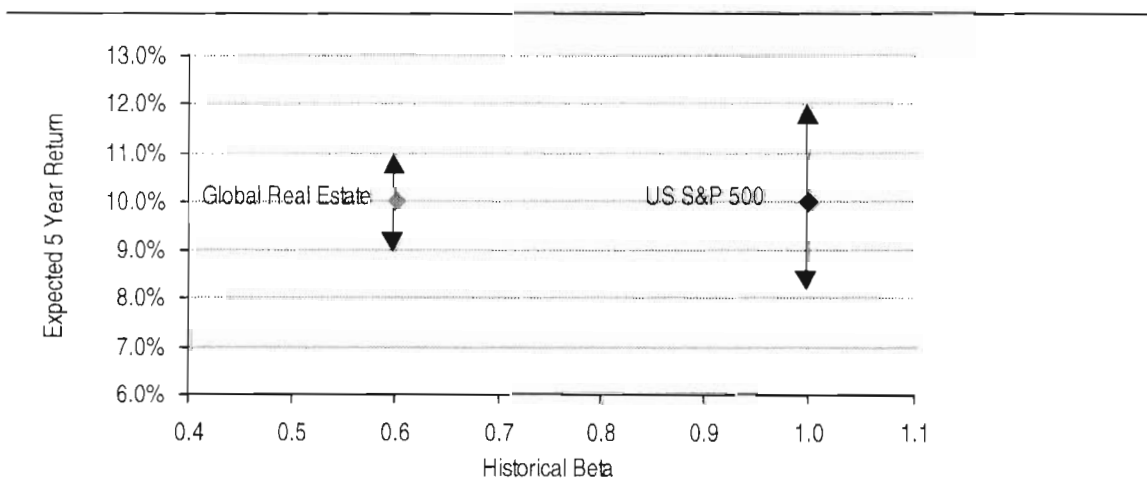
Figure 6: US Equities EPS growth



Source: UBS Warburg estimates

In comparison, we expect a 5 year 10%+ p.a. IRR from global listed real estate, given the average 6% yield and a conservative earnings growth estimate equal to 4%. Given the beta of the sector at 0.55, a comparison of the relative risk-adjusted returns offered by property appears to be compelling.

Figure 7: Global Property and Equity Risk/Return Profile

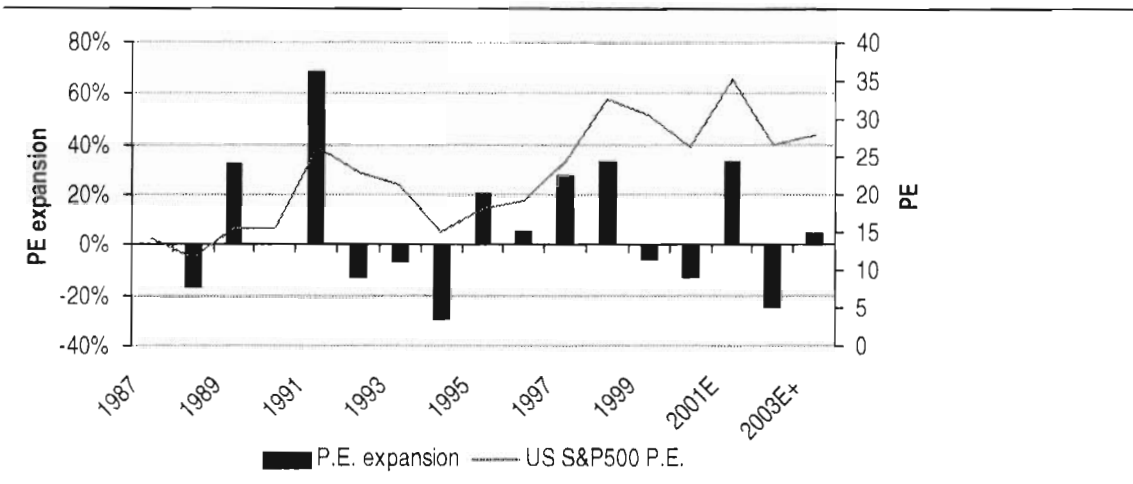


Source: UBS Warburg estimates.

In addition, equity returns over the last fifteen years have been aided by PE expansion (consistent with a lower inflation environment), with the average US S&P500 PE multiple rising from 14 in 1987 to 35 in 2001 (average PE expansion of 6.5%pa). Given the current low inflation environment, further significant PE expansion remains difficult, suggesting the probable return for equities can be collapsed to simply their expected dividend yield and earnings growth. At an expected return of 10% pa, this is

in-line with our expectations for listed real estate. As investors respond to the risk differential between real estate and equities, we expect a significant increase in real estate allocations to 10%+ over the next five years.

Figure 8: US Equities PE expansion



Source: UBS Warburg estimates

THE EXTENT OF GLOBAL REAL ESTATE SECURITISATION

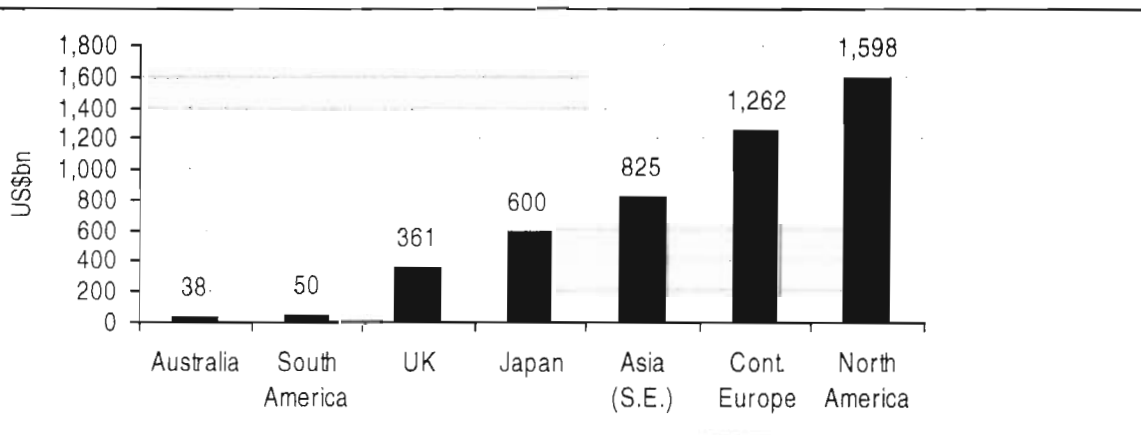
Increased demand for real estate will need to be met with investment grade assets. However, the scope for this demand to be met in Australia by domestic real estate is becoming increasingly limited. For instance, in Australia approximately 55% of all institutional grade real estate recorded in the Property Council of Australia's database is listed, including 80% of retail (75% of all regional shopping centres, with Westfield dominating), 50% of office and 60% of industrial assets. This should see supply growth decline from 25%pa for 1996 –2000 to 7% over 2000 –05, providing ongoing support for Australian listed real estate over the medium term. For instance, the last two years of strong price performance by Australian listed real estate (18% total return in 2000 and 12% 2001 year to date) has occurred in conjunction with demand (led by superannuation savings) growing at \$2.5bn+ pa, above supply (newly issued capital) at \$2bn.

Table 1: Size of Global Institutional Property Market

Region	Total RE US\$Bn	Listed RE US\$Bn	Listed %total	Global Share
Australia	38	21	55%	1%
North America	1,598	288	18%	34%
South America	50	na	na	1%
UK	361	60	17%	8%
Cont. Europe	1,262	32	3%	27%
Asia (S.E.)	825	90	11%	17%
Japan	600	61	10%	13%
Combined	4,733	552	12%	100.0%

Source: UBS Warburg est. AMP/Henderson Global Investors, PCA, NAREIT

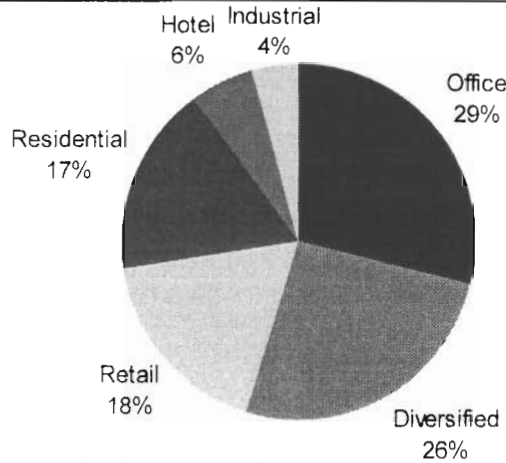
This forecast undersupply is expected to drive a marked increase in overseas real estate investment by Australian domestic investors, particularly given outperformance by existing listed vehicles such as Westfield America Trust (WFA), Lend Lease US Office Trust (LUO) and Macquarie Countrywide Trust (MCW—partial US exposure). New international specific real estate vehicles and managed funds are also expected, given the relative size of the Australian property market (Figure 9 below).

Figure 9: Institutional Grade Property By Region (total = 100%)

Source: UBS Warburg, est. AMP/Henderson Global Investors, PCA, NAREIT

Real estate continues to become increasingly focused upon as an international asset class and is the last asset class to globalise. The recent inclusion of Equity Office (EOP) in the US S&P500, and potentially others in the future, should drive increased attention from major investors. Similarly, in Japan, listed property is enjoying an increased investor profile with the successful launch of the country's first JREITs.

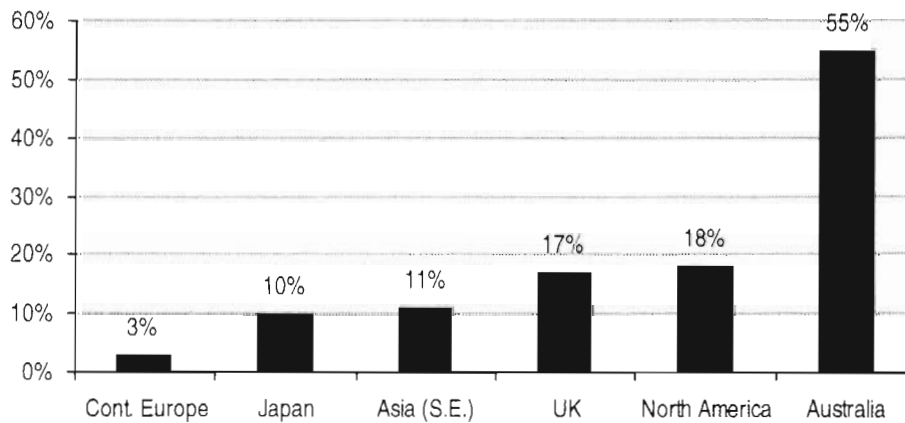
Figure 10: Global Real Estate Universe—Split by Market Capitalisation



Source: UBS Warburg estimates

Both the US and Japanese vehicles are structured in the same fashion as Australian Listed Property Trusts (the most securitised real estate market in the world—together with HK). Australia is largely recognised as the worlds “best practice” structure for listed real estate in terms of transparency and management/asset quality. Evidence of the success of this structure is demonstrated by the increasing importance of listed real estate, including developers, in the Australian equities markets, which is now the third largest sector at 9.1% of the Australian S&P500 (Sep-01).

Figure 11: Proportion of Institutional Grade Property Listed By Region (total = 100%)

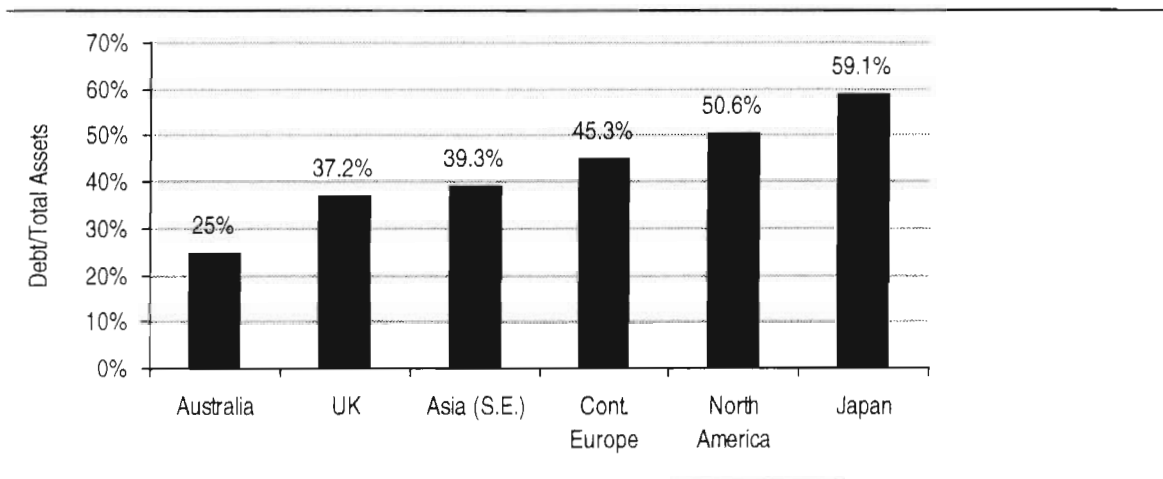


Source: UBS Warburg est. AMP/Henderson Global Investors, PCA, NAREIT

A COMPARISON OF INTERNATIONAL GEARING LEVELS

A comparison of gearing levels across international securitised real estate markets reveals that Australia has one of the lowest levels of debt to total assets. Recently there has been much discussion regarding the optimal gearing level for real estate investment vehicles within Australia. On the one hand, some academics and practitioners argue that an increase in the debt levels of LPTs will facilitate higher returns for investors. On the other hand, some argue that increased gearing levels may result in more volatile returns to investors, leading to an increased risk profile. This may see a dilution of the real estate return characteristics of LPTs, reducing the benefit of their inclusion in multi-asset portfolios.

Figure 12: International Securitised Real Estate Gearing Levels



Source: UBS Warburg est. AMP/Henderson Global Investors, PCA, NAREIT

The experience of overseas listed real estate markets demonstrates that investors are willing to accept higher gearing levels from listed property vehicles. However, real estate markets with the highest gearing levels are not necessarily the most successful securitised markets. The fact that Australia has one of the most successful property securities markets in the world, in conjunction with low gearing levels, should (in the authors' opinion) encourage caution on the part of academics and practitioners. An important characteristic of real estate investment is that its return profile sits between fixed interest and equities. Increasing gearing may in fact lead to higher returns; however, the impact on the security of these returns, and on the diversification benefits provided by real estate, will need to be considered.

INCREASED GLOBAL PENSION ALLOCATION AND LISTED REAL ESTATE

We continue to see the ageing of populations in developed economies and the subsequent introduction of compulsory superannuation as re-inforcing higher real estate weightings. As Baby Boomer's (born 1946 –61) move from an accumulation phase to spending over the next two decades, we expect to see a shift in investment demand from capital growth/low income assets to higher income/capital preservation style assets. An examination of Australian demographic predictions demonstrates the extent of this shift—the proportion of the retired to working population is expected to increase from 26% in 1999 to 46% by 2021 (Table 2). This trend is anticipated to be replicated internationally, with Japan expected to experience the most pronounced increase in the proportion of retirees.

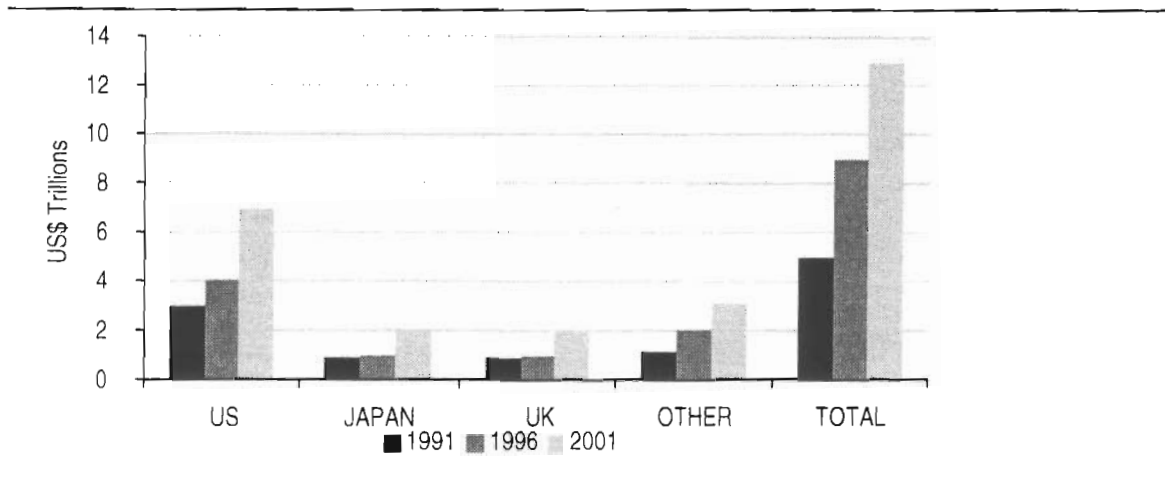
Table 2: Australian Demographic Trends

Population Category	millions	Working Category	1999	2021
Baby Boomers (1946–61)	4.0	Retired (m)	3.1	5.4
Xers (1961–76)	4.4	Working (m)	12	13.3
Dotcoms (1976–91)	4.0	Ratio (%)	26%	41%

Source: KPMG estimates

World pension assets have increased significantly over the last ten years as demonstrated by Figure 13 below. We expect pension assets to continue to increase, given the global introduction of compulsory superannuation, with recent examples including Hong Kong and France. This, combined with the ageing population trend, will inevitably lead to an increase in the demand for annuity style income streams. Given declining government bond issuance in mature economies, we expect much of this demand to be focused on real estate. Real estate offers the advantage of supplying ideal liability matching whilst providing a defined and regular income stream with the benefit of capital preservation. In particular, we predict an increased focus on securitised real estate, given the ability to easily liquidate assets in order to meet redemptions.

Figure 13: Global Pension Assets 1991/1996/2001 (US\$ trillions)

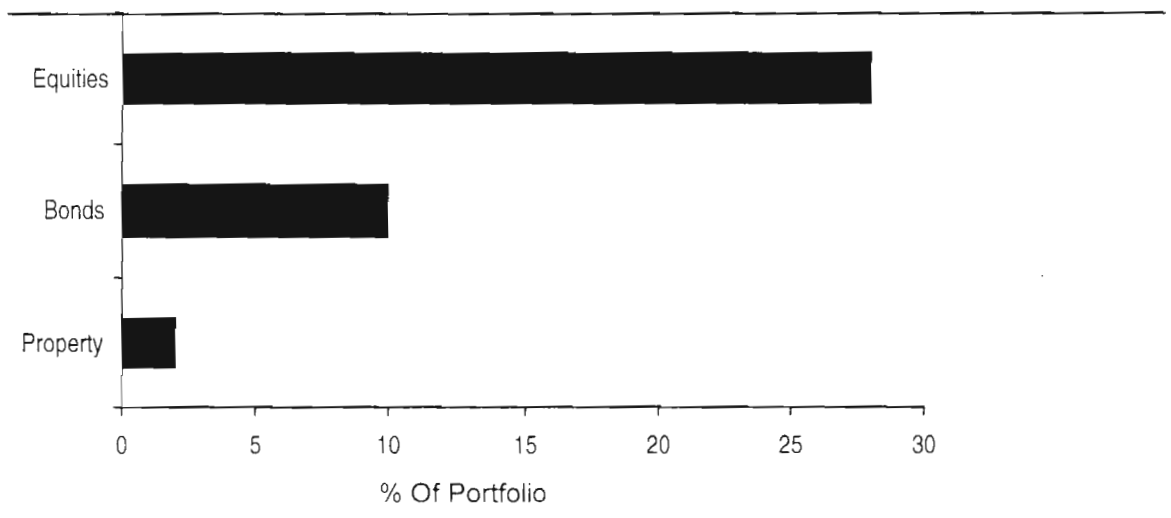


Source: Fiduciary Trust Company

OPTIMAL PROPERTY ALLOCATIONS—OPTIMISATION AND REAL ESTATE INVESTMENT

Current allocations to property are below the level suggested by portfolio optimisation models. As shown by Figure 14 below, the global allocation to real estate is less than 3%. This includes Europe and the US at less than 5% of assets allocated to real estate. The Australian real estate market weight allocation is approximately 8%, composed of 6.5% listed property and 1.5% direct real estate investment. This is in comparison to optimisation models which support a 10%+ real estate allocation.

Figure 14: Allocation to International Assets, Global Pension Funds

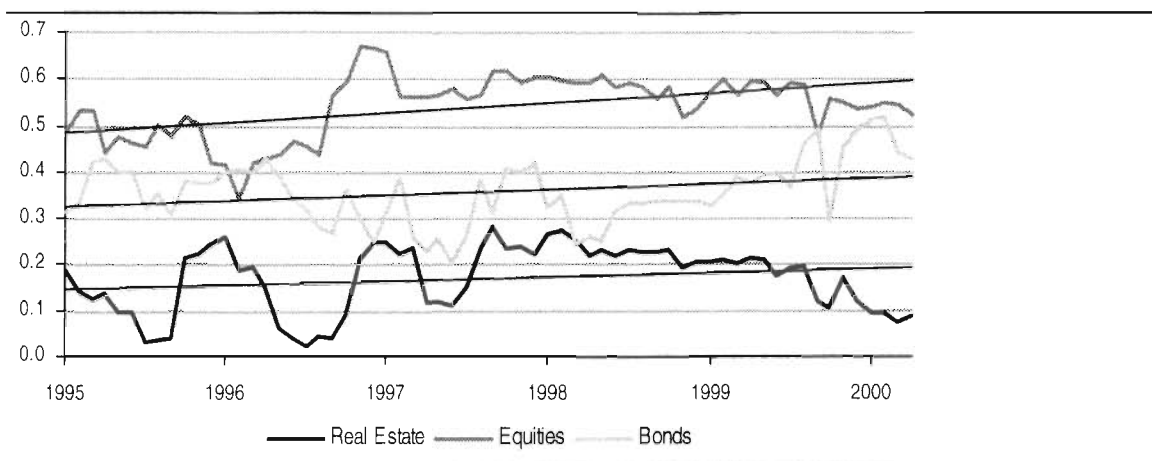


Source: Watson Wyatt, Global Asset Study, WM Mercers, Kingsley and Assoc.

Each type of investment class displays unique return characteristics and price volatility. Portfolio theory is based on the concept that diversifying across these investment classes lowers overall portfolio risk. The benefits of diversification depend on the correlation of

the marginal asset with an investor's existing portfolio. Correlation measures the extent to which different investment returns move together over time. Absence of strong correlations among a portfolio of different investments increases the return and reduces the risk of the portfolio. Low to moderate correlation is sufficient to provide these portfolio diversification benefits.

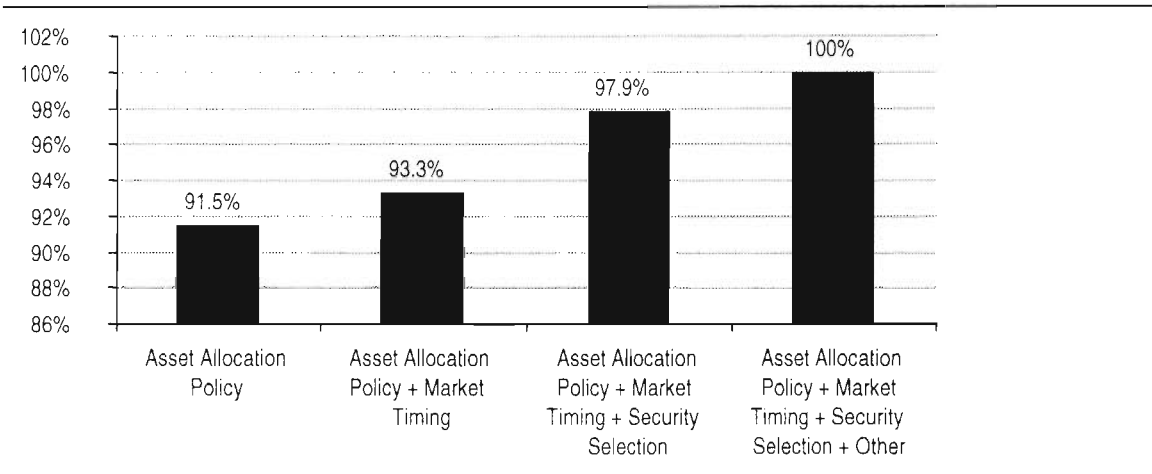
Figure 15: Real Estate, Equity and Bond Correlations between countries over time



Source: FTSE, UBS Warburg

In terms of global investment, diversification benefits of cross-border investment are significantly higher for real estate than for equities or bonds, as demonstrated by Figure 15 above. The low correlation of real estate returns is a result of country specific performance drivers.

Figure 16: Contributing Factors of Portfolio Performance Variation



Source: Brinson, Gary P. 1991 "Determinants of Portfolio Performance", *Financial Analysts Journal*, May/June.

The effect of the inclusion of listed real estate on portfolio risk/return is best demonstrated by a comparison of Tables 3 and Tables 4 below. Table 3 displays the expected return and risk for six different portfolios, with portfolio 1 being the least aggressive and portfolio 6 representing the most aggressive portfolio, using a constrained optimisation with a 10% allocation to US REITs for 1993–2000. The same results for a 20% allocation to US REITs are displayed in Table 4.

Table 3: Efficient Portfolios Including 10% REITs Constrained Optimisation 1993–2000

	Portfolio					
	1	2	3	4	5	6
Small Stocks	0%	0%	0%	0%	2%	11%
Large Stocks	19%	33%	39%	53%	60%	60%
Bonds	36%	27%	31%	22%	11%	5%
International Stocks	20%	18%	20%	15%	17%	14%
T-Bills	15%	11%	0%	0%	0%	0%
REITs	10%	10%	10%	10%	10%	10%
Expected Return	11.5%	12.8%	13.9%	14.9%	15.6%	15.9%
Standard Deviation	5.5%	6.5%	7.5%	8.5%	9.5%	10.5%

Note: Max Constraints—Small Stocks 20%; Large Stocks 60%; International Stocks 20%; T-Bills 15%; REITs 20%. Min Constraints—Bonds 5%.
 Source: Small Stocks—Ibbotson U.S. Small Stock Series; Large Stocks—Standard & Poor's 500®; Bonds—20-year U.S. Government Bond; International Stocks—MSCI EAFE Index; T-Bills—U.S. 30-day T-Bill; REITs—NAREIT Equity Index.

A comparison of the two tables reveals the benefit of an increased allocation towards listed property securities for a US based portfolio. Although the application of portfolio diversification benefits via global real estate remains an area of future research, the results for the US should be in-line with what we would expect on a global basis. Infact, given the low correlation between cross border real estate discussed above, we would expect the diversification benefits (and hence the optimal weighting) of global real estate to be even higher than the above results for US REITs.

Table 4: Efficient Portfolios Including 20% REITs Constrained Optimisation 1993–2000

	Portfolio					
	1	2	3	4	5	6
Small Stocks	0%	0%	0%	0%	6%	14%
Large Stocks	26%	33%	45%	56%	60%	60%
Bonds	19%	22%	17%	9%	5%	5%
International Stocks	20%	20%	18%	14%	9%	1%
T-Bills	15%	4%	0%	0%	0%	0%
REITs	20%	20%	20%	20%	20%	20%
Expected Return	12.2%	13.4%	14.5%	15.4%	15.8%	16.1%
Standard Deviation	5.5%	6.5%	7.5%	8.5%	9.5%	10.5%

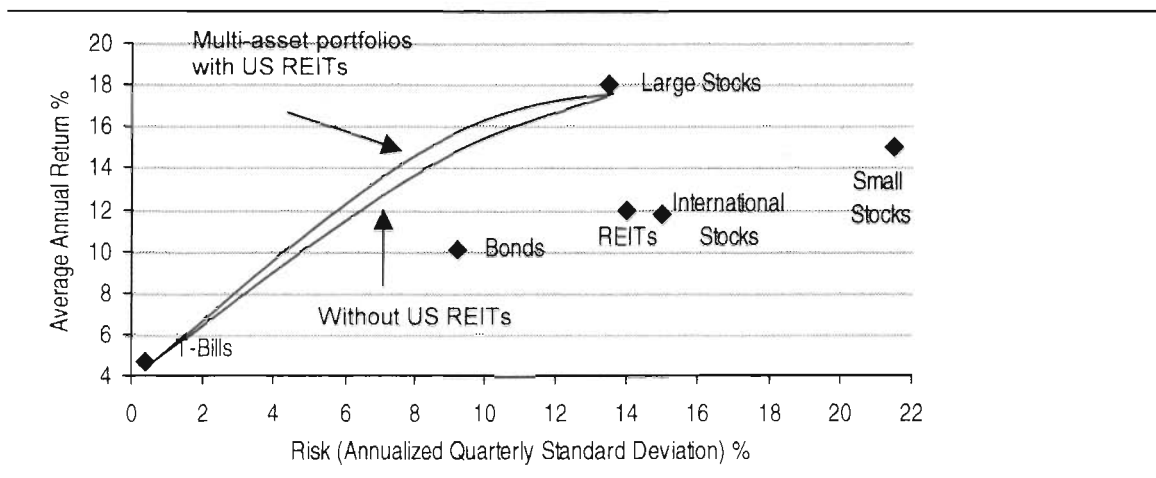
Note: Max Constraints—Small Stocks 20%; Large Stocks 60%; International Stocks 20%; T-Bills 15%; REITs 20%. Min Constraints—Bonds 5%.
 Source: Small Stocks—Ibbotson U.S. Small Stock Series; Large Stocks—Standard & Poor's 500®; Bonds—20-year U.S. Government Bond; International Stocks—MSCI EAFE Index; T-Bills—U.S. 30-day T-Bill; REITs—NAREIT Equity Index.

The diversification benefits of the inclusion of listed real estate in a multi-asset portfolio can be best shown by a comparison of the efficient frontier (the optimal risk/return combination provided by a multi-asset portfolio³) for a portfolio including (at 20%) and excluding REITs. Figure 17 below demonstrates that the inclusion of US REITs in the multi-asset portfolio pushes the efficient frontier inward, effectively increasing the

³ The combination of assets that maximises return for a given risk or minimises risk for a given return.

return for a given level of risk. This is possible due the diversification benefits discussed above —due to the fact that REITs are not perfectly correlated with other asset classes.

Figure 17: Efficient Frontier with and without US REITs



Source: Small Stocks—Ibbotson U.S. Small Stock Series; Large Stocks—Standard & Poor's 500®; Bonds—20-year U.S. Government Bond; International Stocks—MSCI EAFE Index; T-Bills—U.S. 30-day T-Bill; REITs—NAREIT Equity Index.

CONCLUSION

Going forward, we expect global real estate to become an increasingly important aspect of portfolio construction both in Australia and abroad, with 5 year real estate and equity IRRs at similar levels of 10%+, however with real estate offering half the risk. Increased recognition of real estate, an attractive risk return profile for the next five years and a growing demand for annuity style income streams should drive increased allocations to the sector. The results presented in this paper suggest an optimal weighting to international real estate of at least 10%+, implying a 300%+ increase in the average global real estate allocation and a 500%+ increase in listed real estate securities (by value given the current preference for direct investment in the US and Europe/UK).

One of the last sectors to globalise, real estate offers investors significant opportunities to reduce risk and increase expected return via diversification. This is not only true of real estate investment within a country, but more particularly in regards to cross border real estate investment, with international real estate offering the lowest cross border correlation of all asset classes. We propose that increased investor awareness of the diversification benefits of real estate investment should lead to an acceleration of the internationalisation of property as an asset class.

In order to effectively globalise, investors must be provided with an efficient, transparent and liquid means to gain international property exposure. In this paper, we suggest that in response to this need, the future will witness an increased securitisation of the real estate asset class globally. We expect this trend to be driven to some extent by Australian and Dutch institutional investors, with the application of domestic skills to overseas investment and the shrinking pool of domestic real estate investment opportunities.

Areas of future research may include the quantitative examination of the benefits of the inclusion of global real estate in a multi-asset portfolio. In addition, we suggest that further analysis should be undertaken in the area of cross border real estate investment including the transparency, management quality (cited as contributing 60%+ to the investment decision—UBSW Global Real Estate Conference), liquidity, and consistency (including levels of gearing etc) of international real estate markets.

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