



City Research Online

City, University of London Institutional Repository

Citation: Moss, A. and Prima, A. D. (2014). Asia Pacific Listed Real Estate: A Contextual Performance Analysis. Singapore: APREA.

This is the published version of the paper.

This version of the publication may differ from the final published version.

Permanent repository link: <https://openaccess.city.ac.uk/id/eprint/18452/>

Link to published version:

Copyright: City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

Reuse: Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

ASIA PACIFIC LISTED REAL ESTATE:

A CONTEXTUAL PERFORMANCE ANALYSIS



ABOUT APREA

APREA is a non-profit industry association that represents and promotes the real estate asset class in the Asia Pacific region. It is the industry body for the suppliers and users of capital in the real estate sector. It embraces the four quadrants of real estate. APREA's mission is to:

- Represent and promote the Asia Pacific real estate asset class
- Encourage greater investment in the Asia Pacific real estate sector through the provision of better information to investors, improving the general operating environment, encouraging best practices and generally unifying and strengthening the industry
 - Enhance regional and global networks for capital suppliers and users
- Represent the sector to governments and regulators to improve the commercial operating environment for members

Its membership comprises real estate companies, listed real estate trusts, unlisted property funds, investment managers, investment banks, property securities fund managers, institutional investors, real estate consultants, corporate advisors, stockbrokers, investment advisors and universities.

APREA membership is the gateway to a network of the industry's most influential decision makers and provides the opportunity to influence and participate in the development of the real estate markets in Asia.

APREA's achievements in education and information dissemination, and focus on improving the general real estate operating environment, have firmly entrenched it as the leading representative body for the industry in the region. In particular, its achievements in driving regulatory improvements within the listed real estate trust sector extend beyond existing markets and pave the way for the emergence of new markets in other Asian countries.

For additional information on APREA, please visit www.aprea.asia.



CONTENTS

2	Executive summary
5	Introduction
6	The authors
7	1/ Background
8	2/ The difference between this study & others
9	3/ Literature review
14	4/ Growth of the Asia Pacific market
19	5/ Performance analysis
37	6/ Portfolio analysis
41	7/ The impact of corporate governance on Asian REITs
45	8/ Regulatory change
46	9/ Market perceptions of the Asian listed real estate market
47	10/ Conclusions
49	References

EXECUTIVE SUMMARY

This paper seeks to provide a better understanding of the performance of listed Asia Pacific real estate, the factors which determine this performance and current and potential roles and applications within portfolio management. Throughout this paper we focus primarily on the Asia Pacific region, that is Asia plus Australia and New Zealand. On occasions, however, for specific reasons we have narrowed the definition to Asia, which will not include Australia and New Zealand.

The starting premise of our analysis is as follows:

- Asia Pacific listed real estate markets are diverse and present differing levels of maturity
- The overall expanding capital markets across the region are providing the depth and liquidity necessary to support increased investor interest in the region
- REITs, long established in Australia, have been introduced into other markets in the region and provide another capital option
- Market capitalisation of Asian REITs (ex-Australia and New Zealand) now exceeds US\$100 billion but REITs represent a minor proportion of the real estate universe
- Studies and surveys such as APREA's *The Significance of Real Estate in Asian Pension Funds* have highlighted impediments to investing in real estate in Asia, including unfamiliarity with the asset class and lack of information
- Global institutional investors tend to view Asian real estate as higher risk and therefore require an appropriate "risk/reward" solution

KEY QUESTIONS

In this paper we set out to answer the following questions:

- **Growth of the market:** How has the Asia Pacific market grown relative to the global real estate universe?
- **Performance analysis:** How has the sector performed relative to other regions globally, as well as other asset classes over the cycles? Are there diversification benefits?
- **Portfolio analysis:** Has having exposure to Asian listed real estate improved performance of a global fund? We use the proprietary fund database of Consilia Capital to assess the impact
- **Corporate governance:** Asian REITs have a different structure to REITs in Australia, the US and Europe. Does this affect performance?
- **Regulatory changes:** Are there potential changes to REIT legislation that could further increase demand?
- **Market perception:** What are some of the issues holding back global investors?

DIFFERENCES FROM OTHER STUDIES

We believe that this study is different from previous studies in a number of important respects:

- Firstly, it examines Asian listed real estate in the context of both global listed real estate, and competing domestic or regional asset classes such as equities and bonds
- Secondly, we have taken actual fund data as well as index data. That is, we are analysing both benchmark returns and the actual, delivered returns to investors
- Thirdly, we have examined the impact of corporate structure and tax status on performance. In particular we draw upon some pioneering work that has been done on the specific topic of whether Asian REIT structures lead to a conflict, or an alignment, of interest with external unitholders
- Fourthly, rather than use a single period, or peak to trough periods, we have broken down the study into an analysis during distinct stages of the cycle, starting with the run up to the Asian crisis in 1997. The purpose is to isolate performance characteristics of Asian listed real estate at different, identifiable stages of the global and regional economic cycle
- Fifthly, we have examined the impact of currency on performance at different stages of the cycle
- Finally, we have isolated the performance differential between investors and developers

CONCLUSIONS

Growth of the market

Asia Pacific has experienced similar levels of growth to the US since the Asian financial crisis and is now valued at US\$542 billion. From a peak of over 50% in the late '90s and a low of about 20% ten years ago, it now represents around 35% of the global listed real estate market.

Performance analysis

Looking at the performance of Asia Pacific listed real estate relative to the global real estate market, we find that with the exception of the period around the Asian financial crisis, the Asia Pacific listed sector has performed consistently well, in both local currency and US\$ terms against a global benchmark.

Below is the summary performance of Asia Pacific listed real estate, the Global benchmark, and the subsequent relative figure. We have shown these in US\$ to enable a consistent comparison, and the calculations are cumulative rather than annualised.

		Global US\$	Asia Pac US\$	Difference
1992-97	Pre Asian crisis	82%	120%	38%
1997-9	Asian crisis	-13%	-26%	-13%
1999-2002	TMT boom and bust	12%	-12%	-24%
2002-2007	Bull market	182%	223%	41%
2007-2009	GFC	-52%	-56%	-4%
2009-2013	Post GFC	125%	159%	34%
2013 -	Tapering	-1%	-1%	0%

In addition, our correlation analysis highlights the importance of Asia Pacific real estate in providing diversification benefits with both stocks and bonds. Emerging Asian markets provide stronger diversification benefits with both asset classes, whereas developed Asian markets provide similar benefits with the Australian, UK and US markets.

Portfolio analysis

Given the dominance of the US in the global listed real estate securities funds market, the decision to go global requires evidence that Asian funds and Japanese funds (the two popular mandates we monitor) can contribute to performance. In only two of the ten years (2005 and 2011) did both Asian and Japanese funds underperform US funds. The correlation of Asian Funds to European and US Funds is lower than for US funds, and below 72% to Japanese funds. By contrast US Funds have a correlation of 90% with European Funds.

Corporate governance

One of the potential areas of concern for investors is the REIT-sponsor relationship which occurs in Asian (ex- Australia and New Zealand) markets. Overall, existing studies appear to suggest that investors do not need to be concerned about potential agency conflicts associated with REIT-sponsor relationships. This is because the interest of REIT managers and sponsors are likely to be significantly aligned with that of other unitholders as most sponsors hold significant unitholdings in the REIT. In addition, given the development-driven nature of the Asian REIT market, the support provided by the sponsors (especially developers) is of particular significance. This has seen strong sponsor backing as one of the important drivers of the growth of Asian REIT markets in the past decade.

Regulatory changes

One of the key elements of a successful REIT market is that the regulators continually revise legislation to maintain growth in the market and reflect trends in international practices. We believe that the current proposed developments (particularly proposed changes to the Hong Kong REIT regulations) would increase the attractiveness of Asian REITs to global investors and facilitate further development of the Asian REIT markets in the future.

Market perception

There are areas where investors believe further improvement could be made, namely:

- REIT managers combining good property skills with good capital management skills
- Buying assets because the acquisition makes sense from the REIT's unitholder perspective, not just to increase AUM (and therefore fees)
- Minimising heavily dilutive equity issues

INTRODUCTION

This paper is divided into ten sections:

Section 1 presents the background and rationale for this paper

Section 2 examines the differences between this and previous studies

Section 3 is a review of the academic and practitioner literature on this topic

Section 4 describes the growth of the market

Section 5 provides a detailed performance analysis

Section 6 presents an analysis of the impact of including Asian listed real estate in a global portfolio

Section 7 looks at the different corporate governance structures of Asian REITs to see if there is a performance impact

Section 8 provides an overview of forthcoming regulatory changes

Section 9 provides an insight into fund manager perceptions of the sector

Section 10 presents the conclusions of this study

THE AUTHORS

ALEX MOSS

Alex gained an MA in the Economics of Finance and Investment from Exeter University and has spent over 30 years specialising in the real estate sector globally. He founded Consilia Capital, which specialises in implementing real estate strategies for corporate and institutional clients, in 2012.

DR ANNISA DIAN PRIMA

Annisa recently completed her PhD program in Real Estate Finance at the University of Reading, United Kingdom. Her PhD research is in the area of Asian real estate investment trusts. She obtained her MSc in Money, Banking and Finance from Birmingham University in 2009 and BA in Business and International Finance from Oxford Brookes University in 2008.

1. BACKGROUND

It is well understood that Asia Pacific listed real estate markets are diverse and present differing levels of maturity. However, it also known that the overall expanding capital markets across the region are now providing the depth and liquidity necessary to support increased investor interest in the region as a whole. This has been particularly noticeable since 2007 when the Asian share of global real estate indices has increased. The peak to trough decline of around 45% suffered in the commercial real estate markets of the US and the UK was not seen in Asian markets, which had a more conservative legacy of debt accumulation at both the corporate and individual levels.

REIT legislation, long established in Australia, has been introduced into other markets in the region, with an increasing level of adoption, thus providing another capital option for both investors and asset owners/managers. At the end of 2013, the free float market capitalisation of Asia Pacific REITs in the TR/GPR/APREA Composite REIT Index was US\$184 billion, comprising 129 REITs, of which Australia accounted for US\$68 billion (27 REITs).

Despite this progress it should be remembered that REITs still represent a minor proportion of the real estate universe. Studies and surveys such as APREA's *The Significance of Real Estate in Asian Pension Funds* have highlighted impediments to investing in real estate in Asia, including unfamiliarity with the asset class and lack of information. Global institutional investors tend to view Asian real estate as higher risk and therefore require an appropriate "risk/reward" solution. The APREA commissioned report on *The Benefits of an Allocation to Real Estate for Institutional Investors* generated some new analysis of the performance of REITs in Asia (ex-Australia) since their inception in 2001 and triggered discussion around the need for more research of this nature on a broader and more regular scale. The performance of Asian listed real estate was again in the spotlight at the annual APREA Property Leaders Forum in April 2014, where this report, together with another APREA report on *Exploring the Linkages Between Listed and Direct Real Estate in Asia*, were presented.

In 2011 APREA established an Investor Outreach Committee, the objective of which is to promote Asian real estate as an asset class and in doing so address the issues and concerns of the kind referred to above. In this regard APREA is becoming more closely aligned with the investor outreach endeavors of NAREIT and EPRA.

APREA therefore sought to commission an analysis of the performance characteristics of listed real estate in the Asia Pacific region, building on the two recent APREA reports, to provide a platform for greater information about this asset class and in so doing help to deal with the challenges referred to above.

Asia Pacific real estate would benefit from greater investment by global institutional investors in many respects, including the following:

- The encouragement of a continental market for real estate in Asia
- The promotion of efficiency and transparency of local real estate markets through the involvement of strong powerful players (e.g. corporate governance)
- The generation of new sources of funding for Asian listed real estate vehicles

This report seeks to provide a contextual framework from which an analysis of the Asian listed real estate sector can seek to provide greater understanding of the sector as a clearly identifiable asset class, and promote further development and acceptance by asset owners and investors globally.

2. THE DIFFERENCE BETWEEN THIS STUDY & OTHERS

We believe that this study is different from previous studies in a number of important respects. Firstly, it examines Asian listed real estate in the context of both global listed real estate, and competing domestic or regional asset classes such as equities and bonds.

Secondly, we have taken actual fund data as well as index data, that is, we are analysing both benchmark returns and the actual, delivered returns to investors. For this we have used the proprietary database of funds provided by Consilia Capital.

Thirdly, we have examined the impact of corporate structure and tax status on performance. In particular we draw upon some pioneering work that has been done on the specific topic of whether Asian REIT structures lead to a conflict, or an alignment, of interest with external unitholders.

Fourthly, rather than use a single period, or peak to trough periods, we have broken down the study into an analysis during distinct stages of the cycle, starting with the run up to the Asian crisis in 1997. The purpose is to isolate performance characteristics of Asian listed real estate at different, identifiable stages of the global and regional economic cycle.

Fifthly, we have examined the impact of currency on performance at different stages of the cycle, and finally we have isolated the performance differential between investors and developers.

THE DATA

One of the major challenges of the research was to establish robust data series on which to conduct the analysis. Data availability varies by market and by country, but this study focuses on the period from the pre Asian financial crises to date where sufficient data is available across all markets covered in this paper.

Within listed markets, there is a spectrum of property listings from REITs to developers. Data availability was highest for the 'all listed' measure as this covers the whole spectrum. However, this measure included all property stocks including those, like developers, whose performance is less intrinsically linked to the performance of the underlying property assets than asset owners and managers.

REITs probably offer the closest parallel to direct investment, as they are typically income focused rather than capital growth focused. Due to the relative youth of REITs in many Asian countries, there is insufficient data to enable the analysis to be conducted on just this (the REIT) part of the listed market.

As a result, a bespoke measure was created from the TR/GPR/APREA Composite Index for the index information since 31 December 1999. The TR/GPR/APREA Composite Index is a free float market capitalisation weighted index which is highly representative of the Asia Pacific property market. The index series includes over 350 property investment and development companies from 12 countries across the region.

When making regional comparisons, the research paper used the GPR General Index. The GPR General Index is a full market capitalisation weighted index consisting of all the listed property stocks that comply to rules as consistently applied by Global Property Research (GPR). The GPR General Index is the longest running index series with an inception date of 31 December 1983.

3. LITERATURE REVIEW

In this paper we seek to build on the work already undertaken on this subject, and have divided our review of the existing literature on the topic into two sections: i) Practitioner reports, and ii) Academic papers.

PRACTITIONER REPORTS

There have been a number of reports which have relevance to the aims and objectives of this paper. They cover the expected growth in Asian pension funds, the current significance and future importance of an allocation to Asian real estate, the benefits of Asian REITs as an investment vehicle, and opportunities in constructing liquid real estate portfolios.

The Significance of Real Estate in Asian Pension Funds **APREA Research Report, Professor Graeme Newell, 2010**

It is well known that real estate is an important asset class for pension funds in many countries. However, whilst Asia has some of the world's largest pension funds, real estate currently does not make up a significant level in most pension fund portfolios in Asia, with real estate often considered a relatively new asset class by Asian pension funds. As the Asian economies mature and the Asian population ages, pension funds will take on significantly increased importance in Asia. This has already seen major pension fund reform in many countries in Asia in recent years and a strategic reassessment of their investment portfolios and their ability to meet future obligations.

The report highlights the important role of real estate in pension fund portfolios globally, and the significant opportunities for pension funds in Asia to increase their real estate exposure. Global and Asian case studies highlight the leading pension funds that are effectively including real estate in their portfolios, particularly focusing on the real estate investment vehicles and strategies used to achieve this real estate exposure.

The Benefits of an Allocation to Asian Real Estate **for Institutional Investors** **APREA Research Report, Professor Graeme Newell, 2011**

At the time of the report, Asia accounted for over 23% of the global real estate markets, with this market share expected to increase to 34% by 2020. This increased share will be driven by economic growth in the Asian emerging market, as well as the economic stature of the developed markets of Japan, Hong Kong and Singapore. The Asian real estate markets have been a significant source of global real estate transactions in recent years, as well as having seen improved real estate market transparency and the growth of a high quality real estate professional services sector. This has seen enhanced stature and maturity of the Asian real estate markets for both local and international real estate investors.

Many institutional investors in Asia do not have experience with real estate as an asset class and many international institutional investors do not have experience with Asian real estate. The report attempts to increase this level of understanding of Asian real estate in their portfolios. It concludes that both REITs and unlisted real estate in Asia have a key role in providing exposure to high quality real estate portfolios in Asia.

The Investment Characteristics and Benefits of Asian REITs for Retail Investors

APREA Research Report, Professor Graeme Newell, 2012

This report highlights the important investment characteristics and benefits of Asian REITs including liquidity, diversification, high income yields, tax transparency, mandatory dividend pay-outs, quality real estate portfolios and quality professional REIT managers.

REITs in Asia have both sector-specific and diversified real estate portfolios, and include access to both domestic and pan-Asia real estate portfolios. Asian REITs also have some unique characteristics to further enhance their retail investor attractiveness; these include accessing the China and India real estate markets and the establishment of Shariah compliant Islamic REITs in Malaysia and Singapore.

Liquid Real Estate: Challenges and Opportunities **Ada Investments, 2013**

This paper looks at how public real estate securities, such as REITs, can be used to provide liquid exposure to real estate, which has compelling underlying characteristics such as yield generation, stability and portfolio diversification properties. The authors point out that any solution needs to combine real estate specific expertise with stock market valuations which are driven by specific discount rate dynamics, liquidity, sentiment and capital flows. The need for this uncommon expertise has left some of the opportunities dormant.

They highlight two such examples:

- To provide investors real estate exposure using public equities by designing a focused real estate portfolio rather than simply using superficial sector classifications
- To extract significant returns from the mispricing in the sector through a hedged long-short strategy

ACADEMIC PAPERS

Asia listed real estate performance

Asian listed real estate has taken on increased importance and attracted significant interest in recent years. As such, there is a large body of literature that has examined the dynamics of the Asian listed real estate markets. To date, numerous studies have focused their attention on the performance of individual Asian listed real estate markets such as China (Newell et al., 2005), Hong Kong (Newell and Chau, 1996; Chau et al., 2003), India (Newell and Kamineni, 2007), Malaysia (Newell et al., 2002), Singapore (Liow, 1997, 2000) and Vietnam (Nguyen, 2012). The results of these studies are generally in agreement: for the whole sample period, Asian real estate markets underperform the respective stock market on an absolute and risk-adjusted basis. However, there has been an improvement in their performance in more recent years.

On the contrary, studies that have examined the performance of pan-Asian listed real estate markets and their performance relative to other regions are still limited. The results from those studies that do exist are inconclusive. Ooi and Liow (2004) analyse the performance of seven developing Asian real estate markets between 1992 and 2002. For the whole sample period, they find that real estate markets in five Asian countries (namely Hong Kong, Indonesia, Singapore and Thailand) have inferior performance relative to their general local stock markets.

Liow and Sim (2006) assess the risk and return characteristics of ten Asian real estate stocks between 1990 and 2003. They find that Asian real estate security markets have inferior performance compared to UK and US real estate stock markets. Their findings further reveal that Asian real estate stocks have higher levels of risk relative to their US and UK counterparts.

Conversely, Serrano and Hoesli (2009) examine the relative performance of securitised real estate across regions and countries between 1984 and 2007. They find that Asian listed real estate exhibits the highest returns and risks, followed by the Americas and Europe regions. On a country level, Hong Kong, Japan and Singapore provide the highest returns, but at the highest standard deviation. Taken together, the findings of these studies appear to suggest that the risk and return characteristics of Asian listed real estate change across market conditions.

Does Asian listed real estate add value to investment portfolio?

It is widely held that investors are able to gain diversification benefits by investing in international property markets. Liu and Mei (1998) find support for market segmentation in international real estate markets, highlighting the benefits of international diversification in real estate. Evidence for Asian real estate markets is still mixed. On the one hand, several studies appear to suggest that Asian real estate does not add value to an investment portfolio. Eichholtz (1997) finds that Asian real estate markets are highly correlated. Liow (2008) analyses the market interdependencies between eight Asian real estate securities markets. He finds that Asian real estate market interdependence becomes stronger in the short term and after the Asian financial crisis period. His findings also show that there is no segmentation between Asian markets and the UK and US real estate markets, an indication that the UK and US markets are able to influence the performance of the Asian real estate securities markets in the short run and long run.

Liow and Adair (2009) investigate whether Asian real estate funds add value to investment portfolios. Based on 13 Asian markets along with the US and UK real estate securities markets between 1996 and 2005, they show little evidence that Asian real estate securities provide any diversification benefits when incorporated within mixed-asset portfolios of shares, bonds and cash.

On the other hand, a number of studies provide evidence of Asian real estate diversification potential. Eichholtz et al. (1998) examine whether continental factors affect real estate returns. They provide strong evidence that continental factors significantly influence real estate returns in the Europe and North America regions, but not the Asia Pacific region. Their findings appear to indicate that the Asia Pacific real estate region is able to offer attractive international diversification opportunities.

Bond et al. (2003) find that Asian property markets offer greater benefits than the “traditional” property markets such as the US and UK. Liow and Sim (2006) find that Asian real estate stocks provide diversification potential when incorporated in US and UK investment portfolios. Liow and Adair (2009) find that investing in Asian real estate securities provides diversification opportunities. Similar evidence is documented by Garvey et al. (2001).

Lin and Lin (2011) analyse the integration relationship between six Asian real estate and stock markets. They find that stock and real estate markets in China, Hong Kong, Japan and Taiwan are integrated and thus do not provide diversification potential. However, investing in real estate in South Korea and Singapore has a diversification benefit to investment portfolios.

Asian REIT performance

A growing body of literature has investigated the risk and return characteristics of Asian REITs compared to other asset classes, namely equities, bonds and property companies. This includes studies on REITs in Japan (Newell and Peng, 2012), Hong Kong (Newell et al., 2010), Taiwan (Peng and Newell, 2012), Singapore (Wong et al., 2012), South Korea (Pham, 2011), and Malaysia (Newell and Osmadi, 2009; Ong et al., 2012) along with pan-Asian REITs (Pham, 2012). The results of these studies appear to indicate that REITs in Asia generally provide competitive absolute and risk-adjusted returns relative to the other asset classes that are at lower risk levels. These studies further reveal that the risk and return characteristics of Asian REITs are time-dependent. Many of them have shown that Asian REITs outperformed other asset classes during the global financial crisis (GFC) and post GFC periods compared to the pre GFC period.

Overall, evidence seems to suggest that Asian REITs have a significant role in multi-asset investment portfolios due to their different risk and return characteristics compared to other asset classes. Asian REITs are also shown to have had defensive characteristics of low risk and high portfolio diversification during the financial crisis period. This has seen many Asian REITs deliver stronger returns and performance than other asset classes during the GFC.

Asian REIT diversification benefits

In a mixed-asset portfolio

The diversification benefits of Asian REITs have been documented in numerous studies. Ooi et al. (2006) assess the performance of REITs in three Asian countries from their year of establishment to 2005. Their results show that REITs in Japan, Singapore and South Korea have some degree of diversification benefits as indicated by low correlation with their local broad equity market. Newell et al. (2010) examine the potential diversification benefits of Hong Kong REITs in investment portfolios. Between 2005 and 2008, they find that Hong Kong REITs have low correlations with other asset classes (shares, bonds and property companies). The correlation between Hong Kong REITs and shares is found to be lower than that of the correlation between property companies and shares. This indicates that Hong Kong REITs have different property characteristics than property companies in an investment portfolio.

Their findings further reveal that Hong Kong REITs appeared to lose some degree of diversification benefits during the GFC period, suggesting that the diversification potential for Hong Kong REITs is time-dependent. Similar evidence is provided by Newell and Peng (2012) for Japanese REITs, Peng and Newell (2012) for Thai REITs, and Wong et al. (2012) for Singapore REITs. Taken together, the results of existing studies imply that Asian REITs as an asset class have potential diversification benefits when incorporated within multi-asset portfolios.

Diversification by property type and geography

Asian REITs are an attractive investment vehicle for investors because they provide the opportunity to diversify their asset portfolio by investing in different property types and geographical locations. Asian REITs offer a wide range of property types from sector-specific to diversified ones. As a result, they provide investors with choices and exposure to different property sectors. This would then facilitate investors in rebalancing their portfolio weighting depending on the attractiveness of a particular sector at any given time (Conner and Halle, 2006).

Furthermore, many Asian REITs have expanded their asset portfolios to outside their domestic markets. With an increased level of cross-border investment activity, many REITs in Asia provide access not only to the domestic real estate market, but also to pan-Asian and global commercial real estate portfolios. Exposure to different property types and regions facilitates risk reduction and diversification that leads to more efficient portfolios (Liow and Adair, 2009).

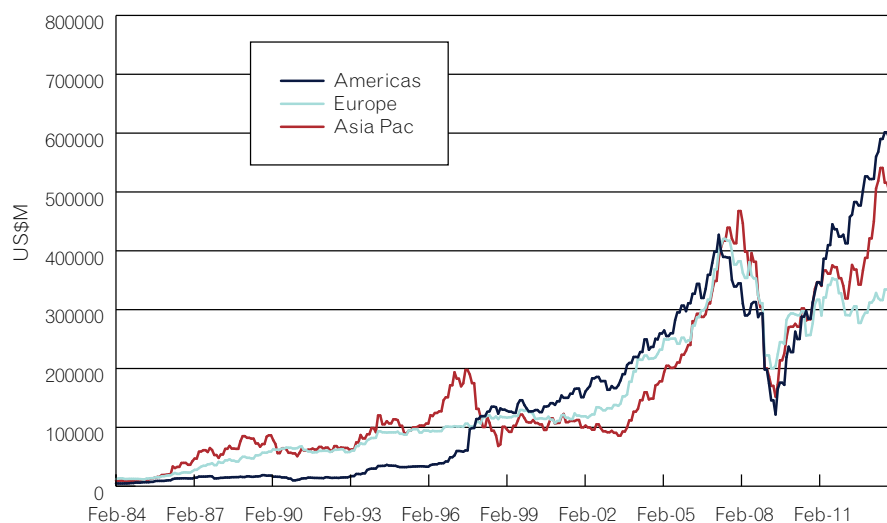
Cross-border investments also make Asian REITs attractive to investors who seek portfolio diversification. Pham (2012) investigates the correlation of returns among seven Asian REIT markets. He finds that emerging REIT markets (Malaysia, Taiwan, South Korea and Thailand) generate lower returns compared to developed ones (Japan, Singapore and Hong Kong). The emerging Asian REIT markets also have lower risk levels than developed counterparts. His findings further show that Asian REITs are generally lowly correlated with each other. However, correlation coefficients among the developed markets are higher than those of the emerging ones. Taken together, his results imply that investors can achieve potential diversification benefits by investing across different Asian REIT markets.

4. GROWTH OF THE ASIA PACIFIC MARKET

HOW HAS THE ASIA PACIFIC MARKET GROWN RELATIVE TO THE GLOBAL REAL ESTATE UNIVERSE?

In this section we look at how the Asia Pacific listed real estate sector has grown in absolute terms, and in particular how its relative share of the global market has changed over the course of the last 30 years. For comparative purposes we have taken the market value from the GPR Regional Indices (Asia Pacific, Europe and the US) expressed in US\$ terms for consistency. Initially we can see in Figure 1 the growth in absolute terms. Thirty years ago, in 1984, the Asian listed sector was valued at US\$9.6 billion. Twenty years ago in 1994 it was valued at US\$91.8 billion, an increase of 8.6 times over the ten year period. Ten years ago in 2004 it was valued at US\$131.4 billion, an increase of 43%, and at the beginning of 2014 it was valued at US\$542.0 billion, an increase of 3.1 times.

Figure 1: Growth in regional markets 1984-2014



Source: GPR, Consilia Capital

Whilst this does represent an exceptional level of growth, the key question is how has the Asia Pacific share of the listed global market changed? Figure 2 shows this clearly, based on the GPR Indices.

Figure 2: Asia Pacific listed real estate as a % of the global market

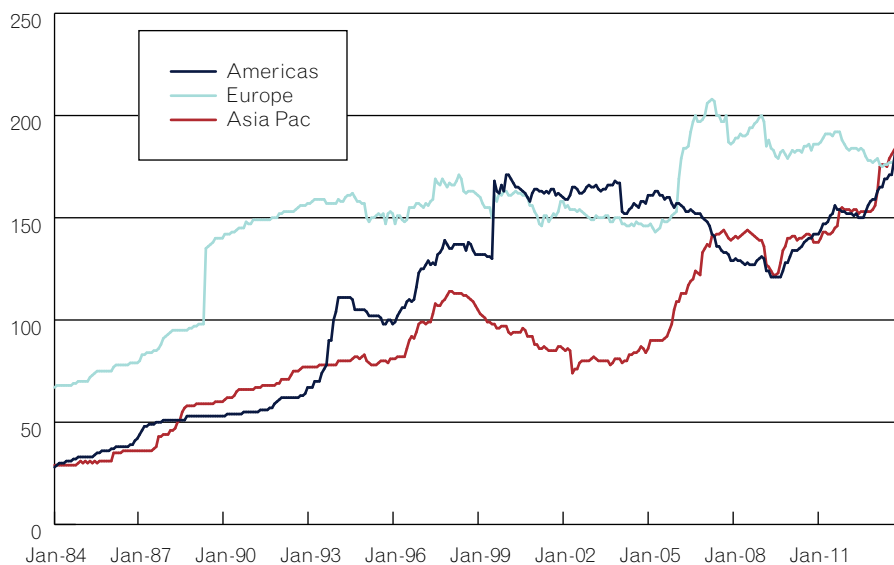


Source: GPR, Consilia Capital

Prior to the Asian crisis of 1997, Asian listed real estate represented over 50% of the global market. This subsequently declined to just over 20% in the early 2000s, but there has been a consistent increase since then and it now stands at around 35%.

Part of this growth is down to performance, but part of it reflects IPOs and secondary issues by existing companies. Firstly, in terms of IPOs we can see from Figure 3 that there has been a dramatic increase in the number of Asian companies represented in the GPR Indices, which reflects both IPOs and improved compliance with index requirements. Investors now have as many index constituents to choose from in Asia as they do in the US or Europe.

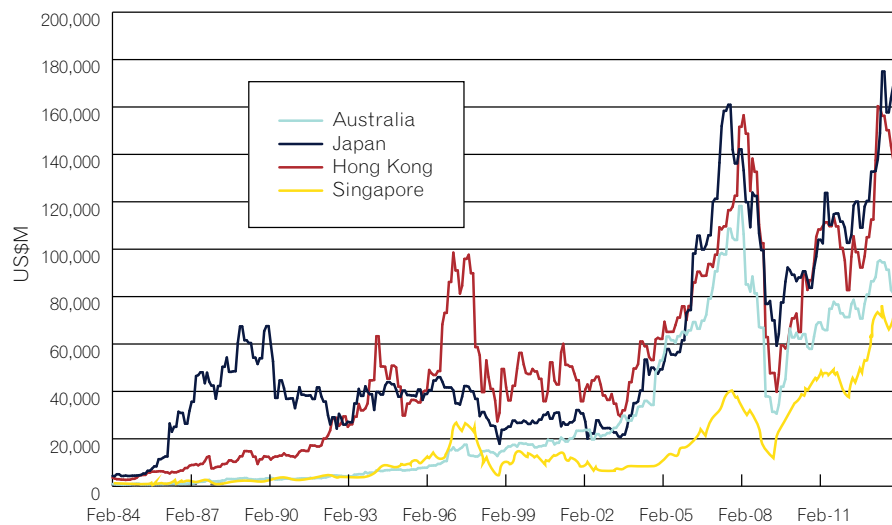
Figure 3: Number of “investable” real estate companies by region



Source: GPR, Consilia Capital

The other reason is equity fund raising. Asian listed companies have been able to access equity capital markets to grow. In 2013 they raised US\$20.3 billion of equity capital (source: SNL). Appetite for Asian listed real estate equity issuance is back above pre GFC levels. Whilst this is important at a regional level, it is important to understand the changes in the investable (i.e. index constituent) universe in the major countries for investors - firstly, by size, in Figure 4.

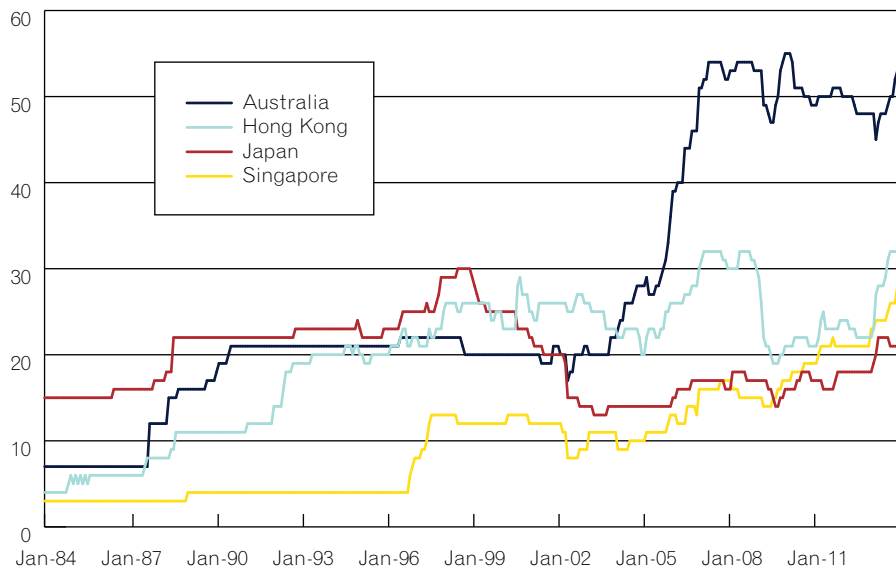
Figure 4: Growth in individual Asia Pacific markets 1984-2014



Source: GPR, Consilia Capital

And secondly, by number of companies, in Figure 5. We show here the number of companies in each of the developed Asia Pacific markets which are included in the GPR General Index. We therefore define “investable” as meeting the criteria for, and being included in, the GPR General Index. The index includes developers, landlords, and REITs. As can be seen, the spread of country exposure by both size and number of companies has increased significantly over the last ten years. It should also be remembered that in addition to the companies in the Index, there are a significant number of listed real estate companies which are not in the main developed market indices.

Figure 5: Number of “investable” companies by country

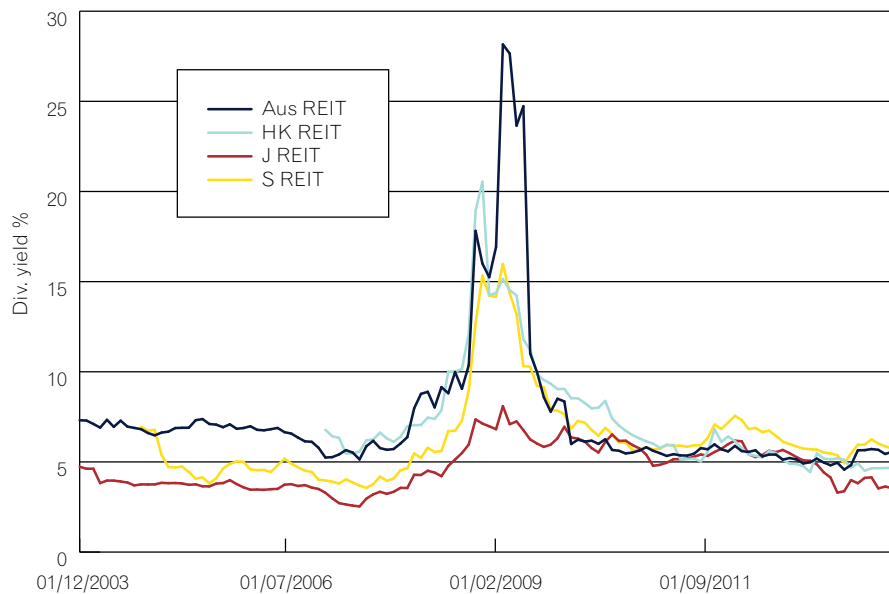


Source: GPR, Consilia Capital

HOW HAVE VALUATIONS FOR THE MAJOR MARKETS MOVED OVER TIME?

One of the key aspects of assessing the Asia Pacific listed markets is understanding the range of valuations over different stages of the cycle. This does present issues when trying to compare share prices to NAVs on a global basis as not all jurisdictions revalue externally or on a comparable basis, so the most straightforward method is to look at dividend yields from REIT vehicles. In Figure 6 we show the unweighted average dividend yield of the largest REITs in each of the four developed Asia Pacific markets. As can be seen in this chart, there was a significant spike during the GFC (2008) particularly from the Australian REITs, which ended as share prices recovered and dividends were reset at lower levels following equity recapitalisations.

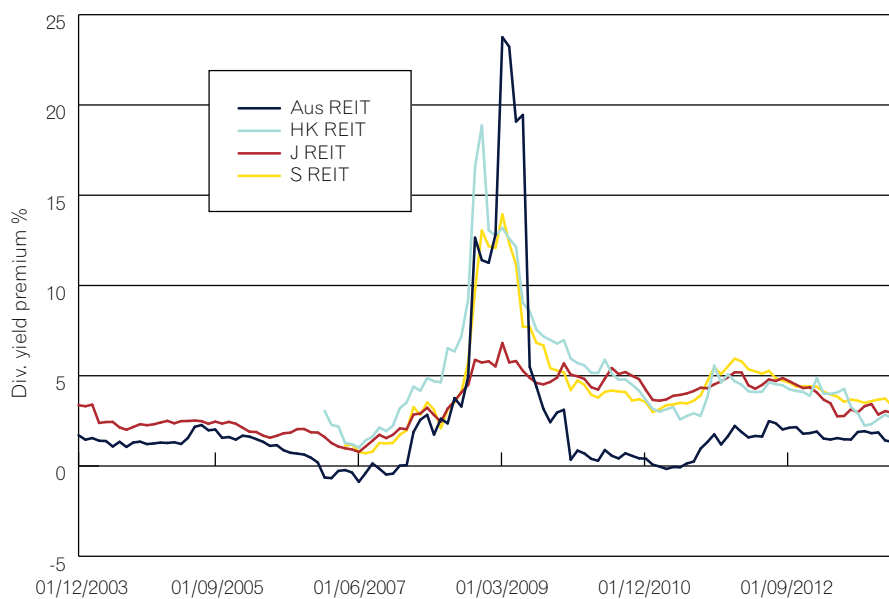
Figure 6: Asia Pacific REIT yields in absolute terms



Source: TR/GPR/APREA, Consilia Capital

However, this only tells part of the story as we are interested in how these dividend yields compare to a benchmark, typically the local country ten year government bonds. In Figure 7, we show there has been a consistent premium available on REITs relative to government bonds over the last ten years. This valuation history can be regarded as a key attraction for institutional investors to the sector.

Figure 7: Asia Pacific REIT yields relative to 10Y government bond yields



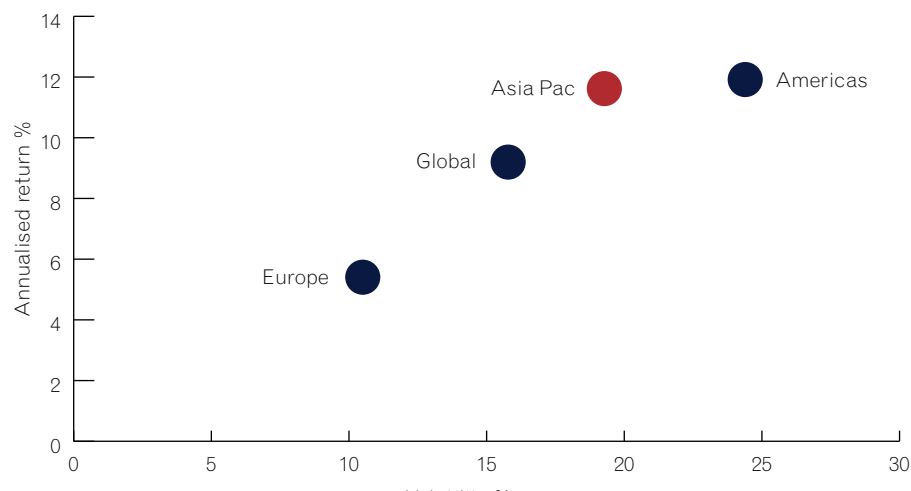
Source: Consilia Capital

5. PERFORMANCE ANALYSIS

HOW HAS THE SECTOR PERFORMED RELATIVE TO OTHER REGIONS GLOBALLY?

Firstly we look at how Asia Pacific listed real estate has performed relative to the other regional markets over the last cycle, i.e. 2003 -2013. As can be seen in Figure 8, over that period (in local currencies) the Asian listed sector has performed in line with the US and outperformed global indices, for less volatility than the US.

Figure 8: Overview of performance 2003-2013



Source: GPR, Consilia Capital

We now break the performance down into the different periods of the cycle. We have taken seven identifiable periods:

1. Pre Asian crisis (September 1992-June 1997)
2. Asian crisis (July 1997-July 1999)
3. TMT boom and bust (August 1999-March 2002)
4. Bull market (April 2002- June 2007)
5. GFC (July 2007-March 2009)
6. Post GFC (April 2009 –April 2013)
7. Beginning of tapering (June 2013 – December 2013)

In each period we are interested in discovering the following:

- How did the Asian listed real estate sector perform relative to the rest of the world? The charts show the results in local currency and the tables below show the comparison when restated in US\$ terms
- What was the impact of currency movements – in particular moving from local currency to US\$. A negative figure indicates that local currencies were beneficial to performance, which worsened on translation to US\$

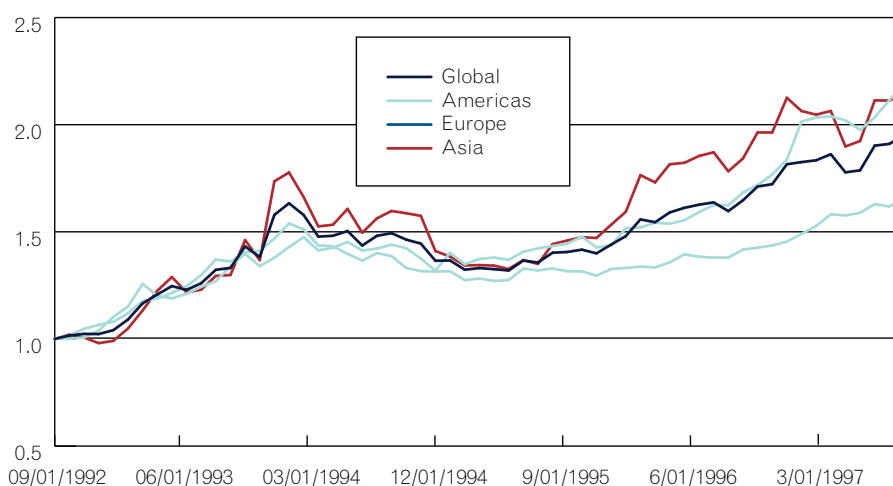
- Was there a difference between the performance of the investors and developers? We show this as a relative chart for the countries (Hong Kong, Singapore and Japan) with both investors and developers. The line shown is the performance of the developers less the performance of the investor grouping, in local currency terms. Note: data for Singapore developers and investors is only available from 2002 so they are not represented in the first three charts.

Please note: the Americas classification can include Canada, Mexico and Brazil in addition to the US, hence the occasional marginal difference between local and US currency. There may also be rounding differences.

PERIOD 1 - PRE ASIAN CRISIS

In the five year period leading up to the Asian financial crisis, all markets showed a positive return, but Asian listed real estate outperformed all regions in US\$ terms. What is noticeable is the quantum of gains (+120% in US\$ terms, +114% in local currency terms). This contrasts particularly favourably to Europe, despite the strong benefit to the UK of declining interest rates following departure from the ERM.

Figure 9: Pre Asian crisis Sept 92–June 97 – Asia in a global context



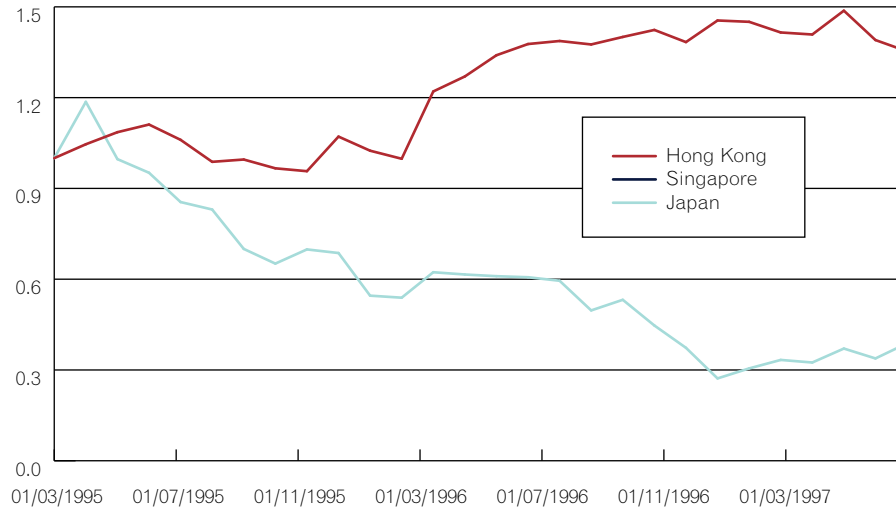
Source: GPR, Consilia Capital

- There was a marginal (6%) improvement when translated into US\$

	Global	Americas	Europe	Asia Pac
Local Currency	95%	119%	66%	114%
US \$	82%	112%	35%	120%
Difference	-13%	-8%	-30%	6%

- Hong Kong developers outperform, Japanese developers underperform

Figure 10: Pre Asian crisis March 95–June 97
– developers vs. investors*



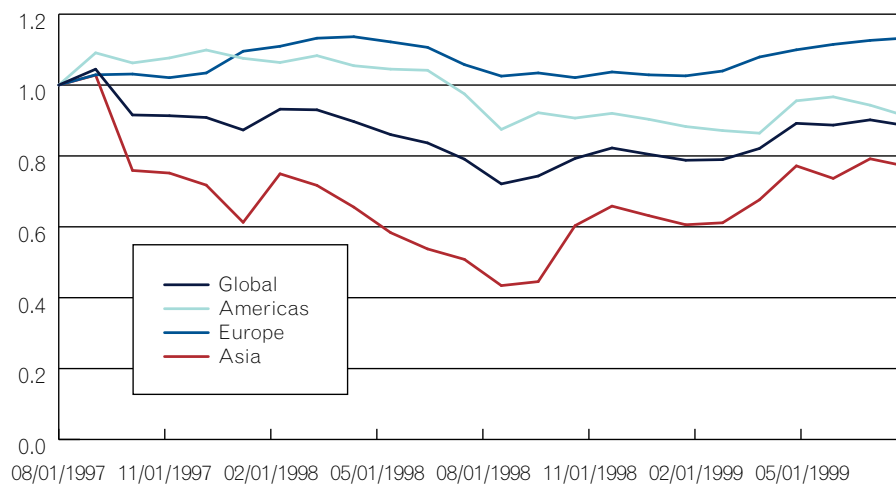
*The line shown is the performance of the developers less the performance of the investor grouping, in local currency terms. Data for Singapore developers and investors is only available from 2002 so is not represented.

Source: TR/GPR/APREA, Consilia Capital

PERIOD 2 - ASIAN CRISIS

It will come as no surprise that Asian listed real estate underperformed during the Asian financial crisis, reaching a low of close to -60% in 3Q 1998 before recovering strongly in 1H 1999. As a result, although in absolute terms (both US\$ denominated and local currency terms) the GPR Asian Index was down over 20%, the relative performance benefited from the fact that the North American and US Index also declined.

Figure 11: Asian crisis July 97–July 99 – Asia in a global context



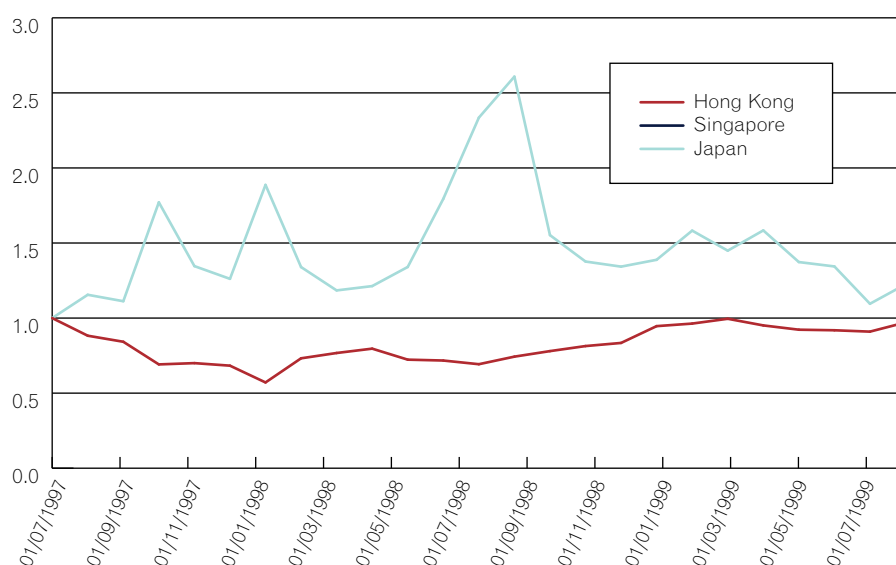
Source: GPR, Consilia Capital

- There was a small (-3%) deterioration when translated into US\$:

	Global	Americas	Europe	Asia
Local Currency	-11%	-9%	13%	-23%
US \$	-13%	-9%	13%	-26%
Difference	-2%	0%	0%	-3%

- Japanese developers outperform in the middle of the period

Figure 12: Asian crisis July 97–July 99 – developers vs. investors*



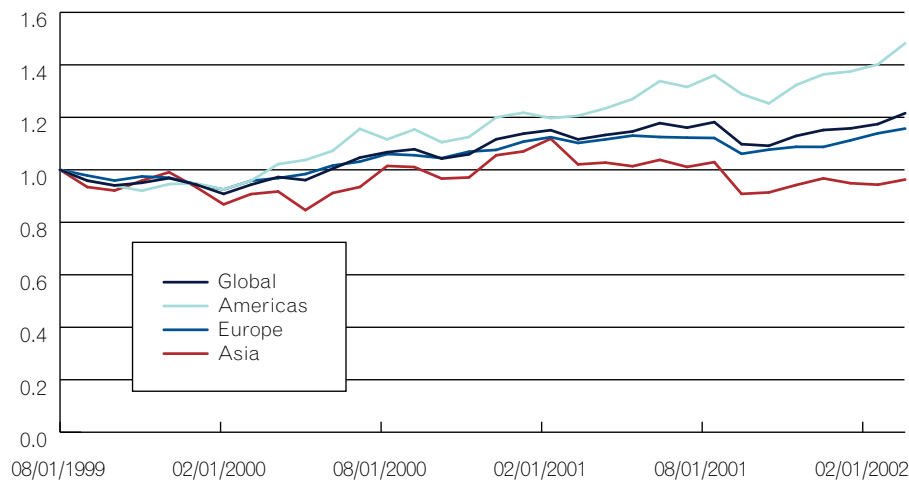
*The line shown is the performance of the developers less the performance of the investor grouping, in local currency terms. Data for Singapore developers and investors is only available from 2002 so is not represented.

Source: TR/GPR/APREA, Consilia Capital

PERIOD 3 - TMT BOOM

The TMT boom (and bust) period was characterised by solid fundamentals in the direct property market, but a lack of investor enthusiasm for listed real estate. This started to reverse in 2H 2001 as TMT valuations began to unravel and the benefits of asset backing to securities became apparent. It should be noted, however, that Asian listed real estate underperforms in the period in both local currency and US\$.

Figure 13: TMT boom Aug 99-Mar 2002
– Asia in a global context



Source: GPR, Consilia Capital

- This increases when translated into US\$

	Global	Americas	Europe	Asia
Local Currency	22%	48%	16%	-4%
US \$	12%	47%	-2%	-12%
Difference	-10%	-1%	-18%	-8%

- Developers underperform investors over the period

Figure 14: TMT boom Aug 99-Mar 2002
– developers vs. investors*



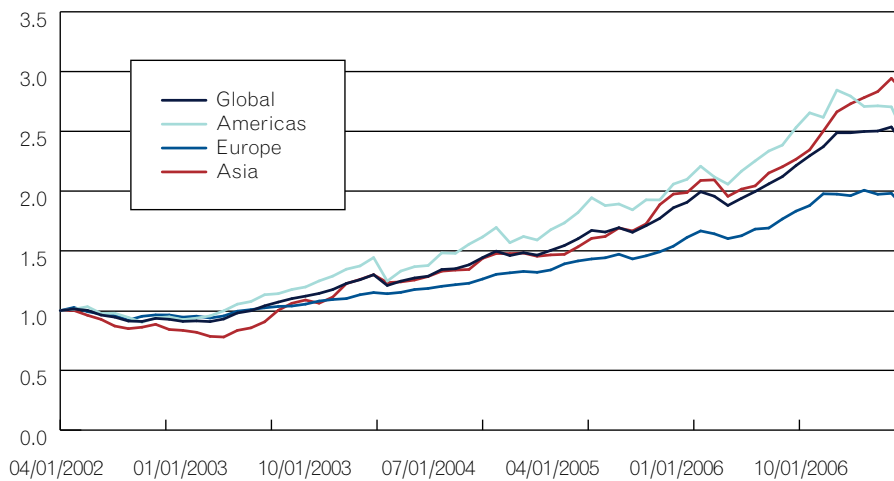
*The line shown is the performance of the developers less the performance of the investor grouping, in local currency terms. Data for Singapore developers and investors is only available from 2002 so is not represented.

Source: TR/GPR/APREA, Consilia Capital

PERIOD 4 - BULL MARKET

The period 2002-2007 was characterised by sharply rising asset values fuelled by greater availability of both debt and equity finance, coupled with improving tenant profitability. Whilst the US and the UK listed sectors were notable for increasing returns by increasing leverage, it is worth noting that Asia listed real estate outperformed all markets significantly in both local currency and US\$.

Figure 15: Bull market April 2002–June 2007
– Asia in a global context



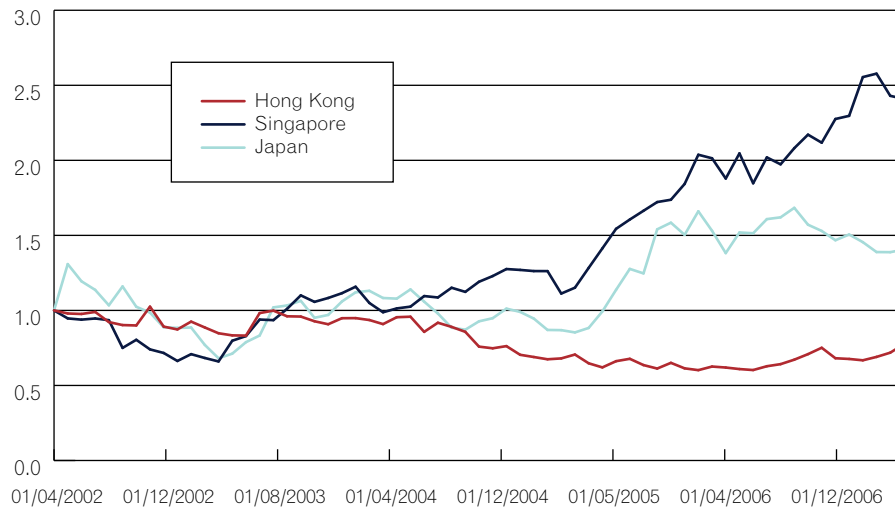
Source: GPR, Consilia Capital

- Outperformance increases further on US\$ translation

	Global	Americas	Europe	Asia
Local Currency	137%	146%	86%	182%
US \$	182%	155%	170%	223%
Difference	44%	9%	85%	41%

- Singapore and Japanese developers outperform

Figure 16: Bull market April 2002–June 2007
– developers vs. investors



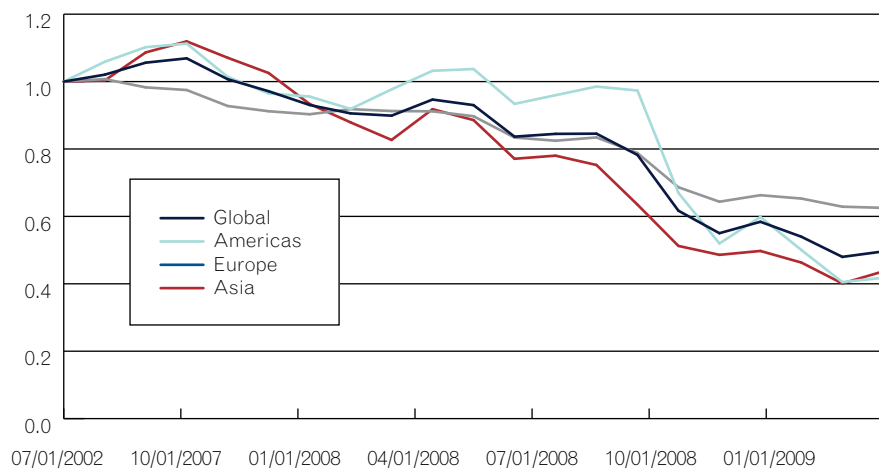
*The line shown is the performance of the developers less the performance of the investor grouping, in local currency terms.

Source: TR/GPR/APREA, Consilia Capital

PERIOD 5 - GFC

Although some Asian listed real estate companies (particularly Hong Kong developers) entered the GFC with a lower level of gearing than their US, UK and Australian peer group, the sector underperformed other regions

Figure 17: GFC July 2007–March 2009 – Asia in a global context



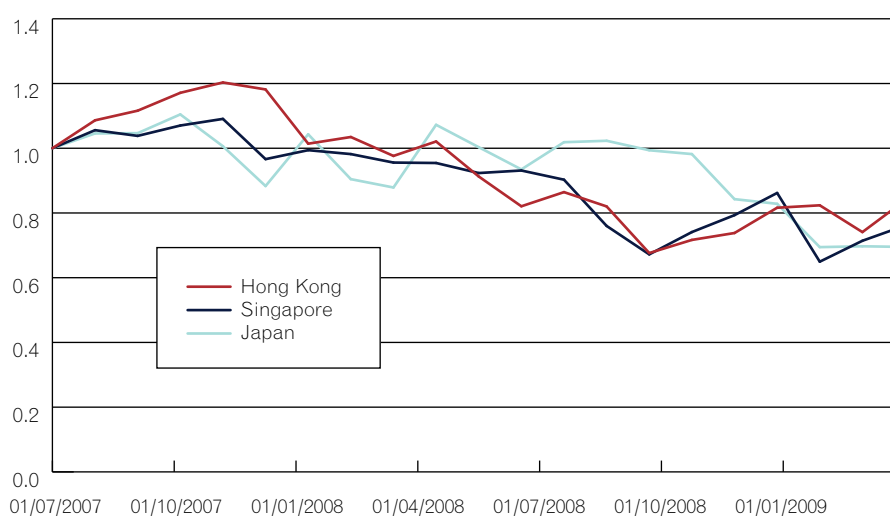
Source: GPR, Consilia Capital

- There is no difference on US\$ translation

	Global	Americas	Europe	Asia
Local Currency	-50%	-58%	-37%	-56%
US \$	-52%	-59%	-42%	-56%
Difference	-2%	-1%	-5%	0%

- Developers underperform investors over the period

Figure 18: GFC July 2007–March 2009 – developers vs. investors*



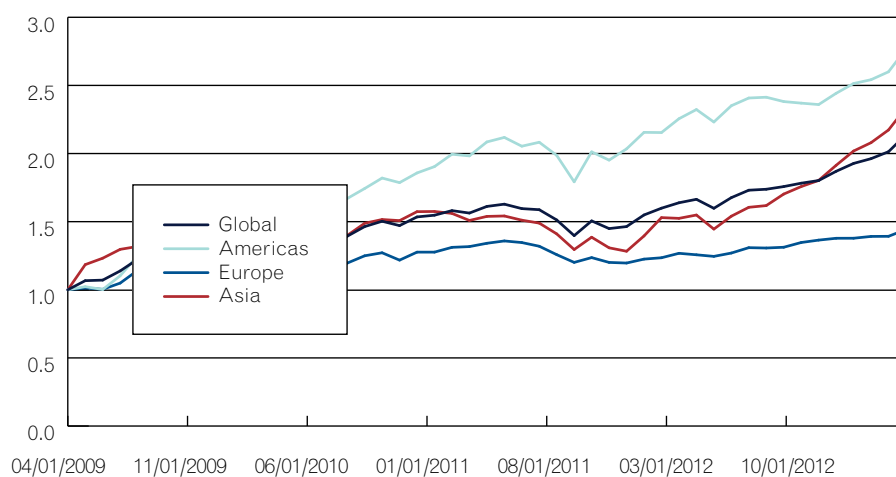
*The line shown is the performance of the developers less the performance of the investor grouping, in local currency terms.

Source: TR/GPR/APREA, Consilia Capital

PERIOD 6 - POST GFC

Given that the greatest level of balance sheet repair occurred in the US it is not surprising that this region displayed the superior performance emerging from the GFC. The Asia Pacific region did however outperform global real estate and European real estate in this period.

Figure 19: Post GFC April 2009–April 2013
– Asia in a global context



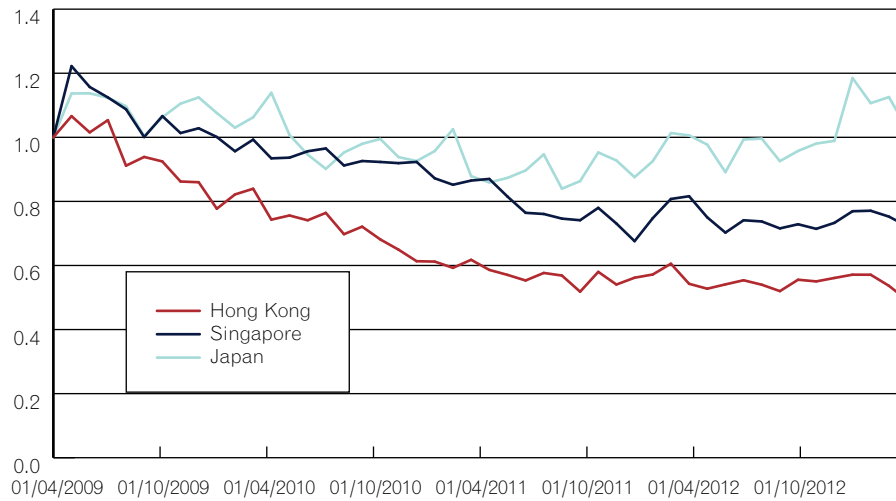
Source: GPR, Consilia Capital

- Performance enhanced by US\$ translation

	Global	Americas	Europe	Asia
Local Currency	114%	177%	44%	134%
US \$	125%	181%	49%	159%
Difference	11%	4%	4%	26%

- Developers underperform

Figure 20: Post GFC April 2009–April 2013
– developers vs. investors*



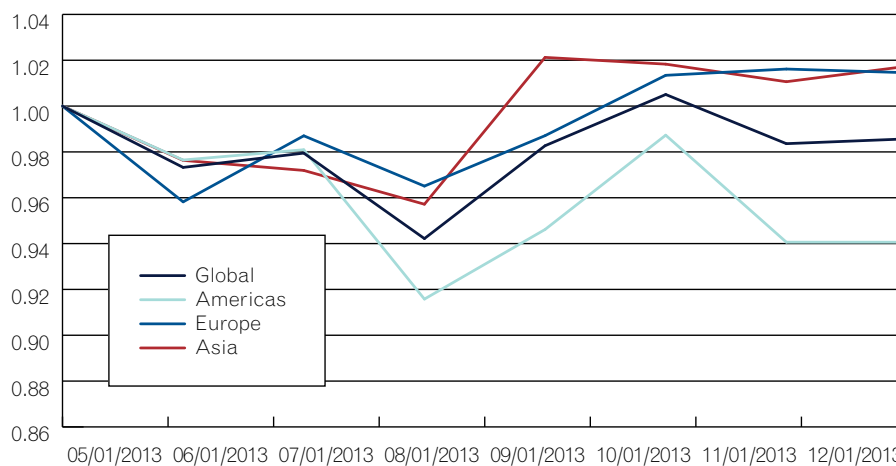
*The line shown is the performance of the developers less the performance of the investor grouping, in local currency terms.

Source: TR/GPR/APREA, Consilia Capital

PERIOD 7 - TAPERING

Our final period tries to capture the next phase of the cycle, that is how listed real estate markets cope with the relaxation and ending of quantitative easing. Although only a brief sample period it is logical that the Asian region is less impacted negatively than the US.

Figure 21: Tapering June 2013–Dec 2013 – Asia in a global context



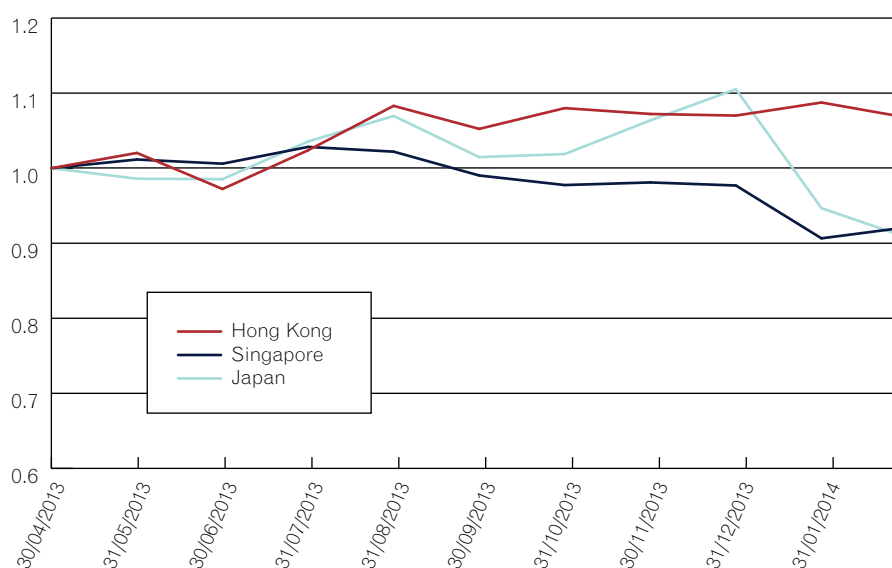
Source: GPR, Consilia Capital

- Minimal currency impact

	Global	Americas	Europe	Asia
Local Currency	-1%	-6%	1%	2%
US \$	-1%	-6%	8%	-1%
Difference	0%	0%	7%	-3%

- Hong Kong developers outperform

Figure 22: Tapering June 2013–Dec 2013 – developers vs. investors*



*The line shown is the performance of the developers less the performance of the investor grouping, in local currency terms.

Source: TR/GPR/APREA, Consilia Capital

SUMMARY

In summary therefore, looking at the performance of Asian listed real estate relative to the global real estate market we can see that with the exception of the period around the Asian financial crisis, the Asian listed sector has performed consistently well, in both local currency and US\$ terms, against a global benchmark.

Below is the summary performance of Asia Pacific listed real estate, the Global benchmark, and the subsequent relative figure. These are shown in US\$ to enable a consistent comparison and the calculations are cumulative rather than annualised.

		Global US\$	Asia Pac US\$	Difference
1992-97	Pre Asian crisis	82%	120%	38%
1997-9	Asian crisis	-13%	-26%	-13%
1999-2002	TMT boom and bust	12%	-12%	-24%
2002-2007	Bull market	182%	223%	41%
2007-2009	GFC	-52%	-56%	-4%
2009-2013	Post GFC	125%	159%	34%
2013 -	Tapering	-1%	-1%	0%

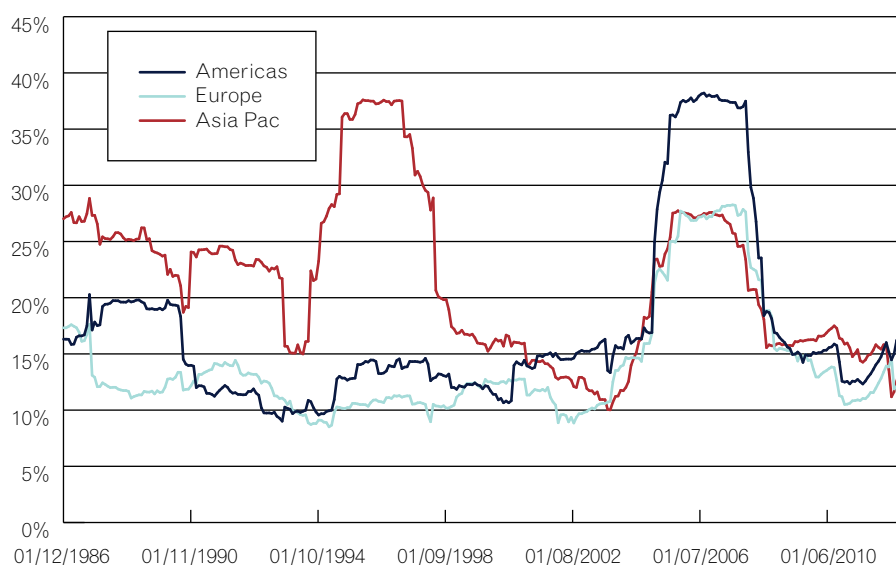
Source: GPR, Consilia Capital

These deal with raw returns, but we are also interested in discovering whether there is a strong correlation between the volatility of Asia Pacific and the rest of the global listed real estate securities market. In Figure 23 we show the rolling 36 month volatility of the regional GPR Indices. Three points are noteworthy:

- The specific increase in absolute and relative volatility at the time of the Asian financial crisis
- The much lower volatility of Asia Pacific stocks relative to the US at the time of the GFC.
- The decline in the absolute volatility of Asia Pacific listed real estate securities over the period

These findings underpin the results of the absolute returns study, in demonstrating the benefit, on a risk-adjusted basis, of allocating capital to Asia Pacific listed real estate either in isolation, or as part of a global weighting.

Figure 23: Relative volatility



Source: GPR, Consilia Capital

HOW HAS THE SECTOR PERFORMED RELATIVE TO EQUITIES AND BONDS?

We now look at how Asian listed real estate has performed at a country level relative to the other asset classes of equities and bonds. We take three measures:

- Annualised returns
- Risk (as measured by annualised volatility)
- Risk adjusted return as measured by the Sharpe ratio

We divide our analysis into four periods:

- A ten year period from 2003-2013. This has been chosen as it represents one clearly identifiable capital market cycle
- This is then further broken down between pre GFC, GFC, and post GFC to see how the relationship changes

Figure 24 presents the performance of Asian listed real estate relative to other asset classes and mature economy markets (Australia, UK and US) between 2003 and 2013. With Indonesia as the exception, developed Asian markets (Hong Kong, Japan and Singapore) achieved higher returns compared to the emerging Asian markets (China, India, Malaysia and Thailand). The real estate sectors in the developed Asian markets have also outperformed their respective stock and bond markets.

Conversely, apart from Malaysia, the overall stock market is the best performer in the emerging markets, followed by real estate and bond markets. For the full period, most Asian markets present superior investment performance relative to more developed economies such as Australia, UK and US. Where domestic stock market indices have a significant weighting towards real estate and banks, it is inevitable that the correlation of equity market returns with listed real estate will be high.

**Figure 24: Asian listed real estate performance
as an asset class 2003-13**

Country	Annualised Return (%)			Risk (%)			Risk-Adjusted Return (%)		
	Real Estate	Stock	Bond	Real Estate	Stock	Bond	Real Estate	Stock	Bond
Australia	4.3	10.8	6.6	17.8	13.6	6.5	-0.05	0.42	0.23
China	-3.9	16.2	4.5	26.5	27.3	5.6	-0.29	0.46	0.13
Hong Kong	16.1	13.2	6.2	27.2	21.4	12.6	0.48	0.48	0.26
India	6.7	17.5	6.5	23.0	25.9	9.3	-0.04	0.38	-0.12
Indonesia	25.8	26.4	14.5	45.9	25.2	23.2	0.35	0.66	0.21
Japan	15.7	5.8	2.8	27.4	19.2	3.2	0.53	0.24	0.46
Malaysia	13.2	12.7	5.7	16.0	13.8	7.7	0.57	0.62	0.21
Singapore	16.1	10.9	5.1	24.3	19.4	7.8	0.56	0.43	0.33
Thailand	13.6	11.7	5.6	20.1	23.0	10.7	0.46	0.32	0.12
UK	7.1	8.9	6.0	22.1	13.6	6.0	0.15	0.37	6.0
US	11.9	8.6	5.1	25.9	14.7	7.7	0.33	0.35	7.7

Source: Consilia Capital, Thomson Reuters, GPR

In terms of risk levels, Indonesia presents the highest risk, whereas Malaysia has the lowest risk level. Several emerging Asian real estate markets (i.e. China, India, and Thailand) have lower risk levels compared to their respective stock markets. All of the real estate markets in developed Asia present higher risk levels than their respective stock and bond markets. This is similar to that seen with Australia, UK and US. Overall, Asian markets have comparable risk levels relative to real estate markets in other regions.

On a risk-adjusted basis, many Asian markets have superior risk-adjusted performance compared to their respective stock and bond markets. This includes all of the developed Asian markets (e.g. Hong Kong, Japan, Singapore) and some emerging markets (i.e. Thailand and Malaysia). Among the developed markets, Singapore achieved the highest risk-adjusted return, with Japan showing similar performance. Furthermore, apart from China and India, most Asian markets show superior risk-adjusted performance compared to the Australian, UK and US markets.

To understand the impact of the changes in economic fundamentals on Asian real estate investment performance, we divide the analysis into three different periods: pre GFC, GFC and post GFC (Figures 25-27).

**Figure 25: Asian listed real estate performance
as an asset class pre GFC**

Country	Annualised Return (%)			Risk (%)			Risk-Adjusted Return (%)		
	Real Estate	Stock	Bond	Real Estate	Stock	Bond	Real Estate	Stock	Bond
Australia	19.4	22.3	4.0	10.0	8.3	4.4	1.39	2.02	-0.36
China	-1.0	30.6	4.4	15.5	20.7	6.7	-0.31	1.29	0.10
Hong Kong	23.9	18.1	X	18.7	13.0	X	1.05	1.07	X
India	X	28.9	2.6	X	20.5	6.6	X	1.07	-0.67
Indonesia	X	41.4	X	X	19.9	X	X	1.50	X
Japan	36.0	17.2	0.9	22.0	13.0	3.6	1.56	1.20	-0.17
Malaysia	21.1	17.9	8.7	19.9	12.2	5.8	0.84	1.10	0.73
Singapore	45.6	23.0	6.2	16.3	10.1	6.1	2.61	1.96	0.50
Thailand	1.8	7.6	X	10.4	16.0	X	-0.30	0.17	X
UK	22.0	13.7	2.8	15.2	7.1	3.8	1.14	1.28	-0.43
US	18.7	9.9	2.1	16.9	7.2	5.7	0.84	0.75	-0.46

Source: Consilia Capital, Thomson Reuters, GPR

As Figure 26 shows, the Asian listed real estate markets were adversely affected during the financial crisis period. However, the extent to which these markets were affected is less apparent than the more mature economy markets, namely Australia, UK and US. The relatively superior performance of Asian markets compared to markets in other regions might be contributed to by the fact that most listed real estate firms in Asia had low gearing levels and access to successful local refinancing, thereby reducing their exposure to refinancing risks during the financial crisis period.

In terms of relative performance with other asset classes, bonds were the best performer during the crisis, followed by stocks and real estate. Most Asian real estate markets are seen to underperform their respective stock and bond markets during this period. However, several markets were able to achieve superior performance compared to stock markets. This includes some developed Asian markets (e.g. Hong Kong and Japan) and one emerging Asian market (Thailand). Hong Kong real estate has outperformed the stock market on an annualised and risk-adjusted basis, but at higher risk levels. Japanese real estate has also presented a higher risk-adjusted return than stocks. Similarly, Thailand real estate is also shown to have superior annualised and risk-adjusted performance with lower risk levels compared to stocks during the financial crisis period.

Figure 26: Asian listed real estate performance as an asset class – GFC

Country	Annualised Return (%)			Risk (%)			Risk-Adjusted Return (%)		
	Real Estate	Stock	Bond	Real Estate	Stock	Bond	Real Estate	Stock	Bond
Australia	-29.7	-12.8	8.6	27.3	19.1	7.5	-1.29	-0.97	0.39
China	-26.5	-7.4	5.2	40.1	46.2	8.4	-0.76	-0.25	0.14
Hong Kong	-11.0	-12.1	12.2	38.5	30.6	17.9	-0.37	-0.50	0.51
India	X	-10.8	9.1	X	38.5	16.3	X	-0.48	0.09
Indonesia	-8.9	-4.8	4.6	42.3	38.7	45.2	-0.49	-0.42	-0.15
Japan	-28.2	-22.6	2.9	31.4	23.6	3.9	-0.95	-1.02	0.37
Malaysia	-12.9	-11.3	1.9	14.8	18.0	13.8	-1.14	-0.85	-0.15
Singapore	-27.2	-18.7	3.9	31.6	28.0	11.8	-0.94	-0.76	0.11
Thailand	-0.9	-12.6	5.0	28.4	34.1	19.2	-0.19	-0.50	0.03
UK	-32.0	-13.4	8.9	27.0	18.7	7.7	-1.36	-0.96	0.66
US	-24.6	-16.7	9.3	40.6	20.9	11.4	-0.70	-0.98	0.41

Source: Consilia Capital, Thomson Reuters, GPR

The post GFC analysis (Figure 27) shows significant recovery in all of the listed real estate markets in Asia. This has seen improved performance and reduction in risks from the GFC period to the post GFC period. China and Thailand were able to achieve higher returns during this period compared to the pre crisis period. In terms of annualised returns, all of the developed Asian markets have outperformed their respective stock and bond markets. On a risk-adjusted basis, superior performance compared to stocks is only evident in Japan and some emerging Asian markets (i.e. Indonesia, Malaysia, Thailand). Furthermore, several Asian markets (e.g. Indonesia, Japan, Malaysia, Thailand) present higher risk-adjusted returns compared to Australia, UK and US. Overall, the post GFC period has seen a much improved investment environment for all of the listed markets in Asia, highlighting their benefits to global investors.

Figure 27: Asian listed real estate performance post GFC

Country	Annualised Return (%)			Risk (%)			Risk-Adjusted Return (%)		
	Real Estate	Stock	Bond	Real Estate	Stock	Bond	Real Estate	Stock	Bond
Australia	16.0	13.5	4.7	13.6	12.9	7.2	0.85	0.70	0.04
China	13.2	14.2	2.2	21.0	21.7	3.1	0.46	0.48	-0.46
Hong Kong	21.6	21.1	1.5	27.3	21.8	10.0	0.72	0.88	-0.05
India	6.7	20.4	4.6	23.0	23.4	6.6	-0.06	0.53	-0.52
Indonesia	36.8	24.7	15.6	26.0	22.0	14.1	1.12	0.77	0.56
Japan	27.4	14.9	3.0	26.3	19.2	2.7	1.00	0.72	0.75
Malaysia	19.3	19.6	3.8	11.4	11.8	5.2	1.36	1.33	0.00
Singapore	20.3	17.7	2.9	22.5	19.2	7.3	0.81	0.82	0.11
Thailand	25.1	27.2	4.7	18.9	21.7	7.6	1.14	1.08	0.13
UK	22.7	16.3	4.4	20.5	13.8	6.5	0.97	0.97	0.27
US	28.3	21.8	3.0	22.3	14.2	7.3	1.15	1.35	0.01

Source: Consilia Capital, Thomson Reuters, GPR

DOES THE ASIAN LISTED REAL ESTATE SECTOR PROVIDE DIVERSIFICATION BENEFITS OR ARE RETURNS TOO CLOSELY CORRELATED?

Figure 28 presents the correlation analysis for Asian listed real estate compared to their respective stock and bond markets. For the whole sample period, Asian real estate is seen to provide some degree of diversification benefits with stocks and significant diversification benefits with bonds. Diversification potential with stocks is most evident in emerging markets such as India (0.30) and Thailand (0.58). Some diversification benefits with stocks are also evident in developed markets, e.g. Japan (0.83) and Singapore (0.86). However, the diversification benefits provided by developed Asian markets are less than the ones provided by developed economies, i.e. Australia (0.68) and UK (0.66). Overall, several emerging Asian markets have greater diversification benefits with stocks than developed Asian and mature economy markets.

Figure 28: correlations of Asian listed real estate

	Full Period		Pre-GFC		GFC		Post-GFC	
	Real Estate / Stock Correlation	Real Estate /Bond Correlation	Real Estate / Stock Correlation	Real Estate /Bond Correlation	Real Estate / Stock Correlation	Real Estate /Bond Correlation	Real Estate / Stock Correlation	Real Estate /Bond Correlation
Australia	0.68	-0.01	0.28	0.33	0.72	0.09	0.66	0.00
China	0.71	-0.38	0.23	-0.12	0.78	-0.60	0.72	-0.03
Hong Kong	0.94	-0.17	0.92	X	0.91	0.02	0.95	-0.28
India	0.30	0.04	X	X	X	X	0.30	0.04
Indonesia	0.80	0.54	X	X	0.81	0.61	0.79	0.60
Japan	0.83	-0.15	0.70	-0.08	0.86	-0.36	0.84	-0.02
Malaysia	0.71	0.19	0.83	0.19	0.70	0.23	0.57	0.19
Singapore	0.86	0.01	0.65	0.00	0.85	0.11	0.90	-0.05
Thailand	0.58	0.09	0.41	X	0.70	0.08	0.49	0.12
UK	0.66	-0.03	0.51	0.36	0.43	0.31	0.76	-0.17
US	0.76	-0.03	0.50	0.29	0.81	0.20	0.74	-0.25

Source: Consilia Capital, Thomson Reuters, GPR

In terms of correlation with bonds, some emerging Asian real estate markets (for example, China and Indonesia) are seen to be highly correlated with the bond markets for the full period. This suggests that real estate in these markets provides less diversification benefits with bonds compared to other Asian markets. All of the developed Asian markets are found to provide significant diversification benefits with bonds, particularly Japan (-0.15) and Singapore (0.01). Diversification benefits are also evident in some emerging Asian markets, namely India (0.04) and Thailand (0.09). Amongst the Asian real estate markets, only Singapore provides higher diversification benefits with bonds than the UK and US markets.

By sub-period analysis, most Asian listed real estate appears to have lost some degree of diversification potential with stocks during the crisis. However, in Malaysia the diversification benefits with stocks improved from 0.83 pre crisis to 0.70 during the crisis. Furthermore, Asian real estate also suffered from a loss of diversification benefits with bonds during the GFC. Conversely, real estate in developed economies (Australia, UK and US) provides greater diversification benefits with bonds compared to most Asian markets. Post GFC analysis shows that the real estate diversification benefits with bonds in most Asian markets have increased significantly. Nevertheless, enhanced diversification benefits with stocks post GFC are only evident in most emerging Asian markets. Japan is the only developed Asian market that has seen an improvement in the post GFC period.

Overall, the correlation analysis highlights the importance of Asian real estate in providing diversification benefits with both stocks and bonds. Emerging Asian markets provide stronger diversification benefits with both asset classes, whereas developed Asian markets provide benefits similar to the Australia, UK and US markets.

6. PORTFOLIO ANALYSIS

HAS HAVING EXPOSURE TO ASIAN LISTED REAL ESTATE IMPROVED PERFORMANCE FOR A GLOBAL FUND?

In addition to the performance analysis in the previous section, we have undertaken separate portfolio analysis using the database of dedicated real estate securities funds provided by Consilia Capital. The purpose is to determine if there is a beneficial impact of holding Asian listed real estate, in a fund format, in a global portfolio. For this study we do not include Australian funds, merely those with Asian and, separately, Japanese mandates. We have included these two categories separately as they represent quite distinct mandates in the funds universe (see Figure 29) with different investor profiles and risk/return characteristics.

SIZE OF THE FUNDS SECTOR

Firstly, we need to understand how the universe of Asian and Japanese real estate securities funds compares to the US, European and global mandates. In Figure 29 we show the relative size, by number of funds and by assets under management (in US\$). There are several points to note here:

- Based purely on the regional (i.e. not including global and global REIT) mandates it is noticeable that dedicated Asian real estate securities funds account for an extremely low percentage (3%) of the total, whereas the Japanese and European weightings are more in line with the weighting of the underlying listed companies in the index
- The US has a disproportionate share of the total market which reflects, inter alia, the growth of US REIT ETFs
- It does seem, therefore, that there is scope for the dedicated Asian real estate securities funds sector to grow in both absolute and relative terms, to more accurately reflect the underlying listed market

One point of clarification may be necessary here. We have separated out global real estate funds and global REIT funds. While some may feel the two should be combined we separate out global REIT funds as they have different characteristics, often related to distribution, their fund of fund structure, and predominantly, but not exclusively, Japanese managers.

Figure 29: Breakdown of real estate securities funds by mandate as at Dec 2013

Mandate	Number of Funds	AuM (US\$m)	% of Regional Funds funds (number)	% of Regional funds AuM	% of total AuM
Asian real estate	68	4,468	19%	3%	2%
Japanese real estate	49	18,424	14%	11%	7%
Pan Asian funds total	117	22,892	33%	13%	9%
European real estate	88	15,422	25%	9%	6%
US real estate	154	136,120	43%	78%	52%
Regional mandates total	359	174,434	100%	100%	66%
Global real estate	241	61,696			23%
Global REIT	77	27,777			11%
Total	677	263,907			100%

Source: Consilia Capital

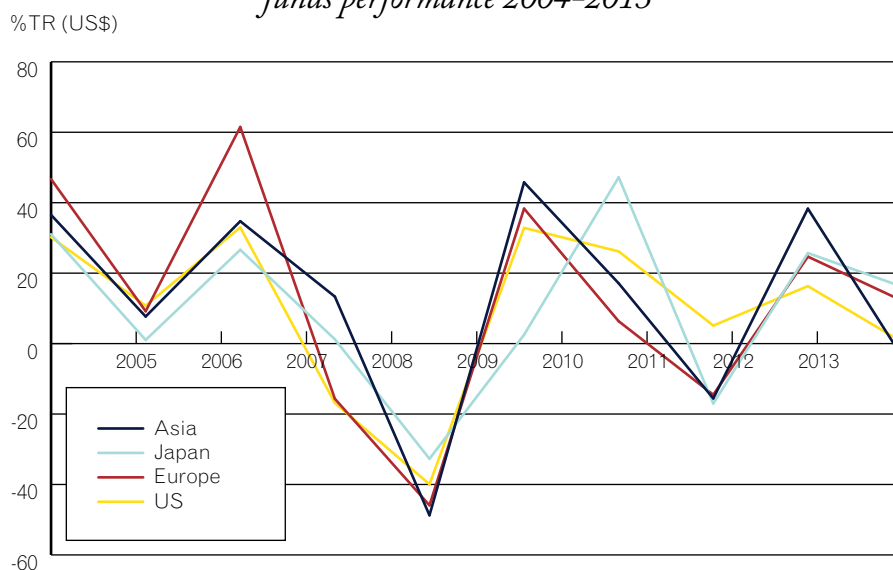
PERFORMANCE OF THE FUNDS SECTOR

In order to attract new investors, however, the sector will have to demonstrate two features:

- That the absolute level of performance does not consistently drag down that of a global fund
- That the regional funds have a lower correlation with the European and US funds, i.e. they provide some diversification benefits

Turning initially to the question of absolute performance, Figure 30 shows the annual total returns (rebased in US\$ for consistency) of the regional mandates. What is immediately noticeable is that whilst the peaks and troughs are not dissimilar there certainly seem to be lead/lag relationships between the Asian and Japanese funds and the other mandates. From a portfolio management perspective this clearly presents opportunities.

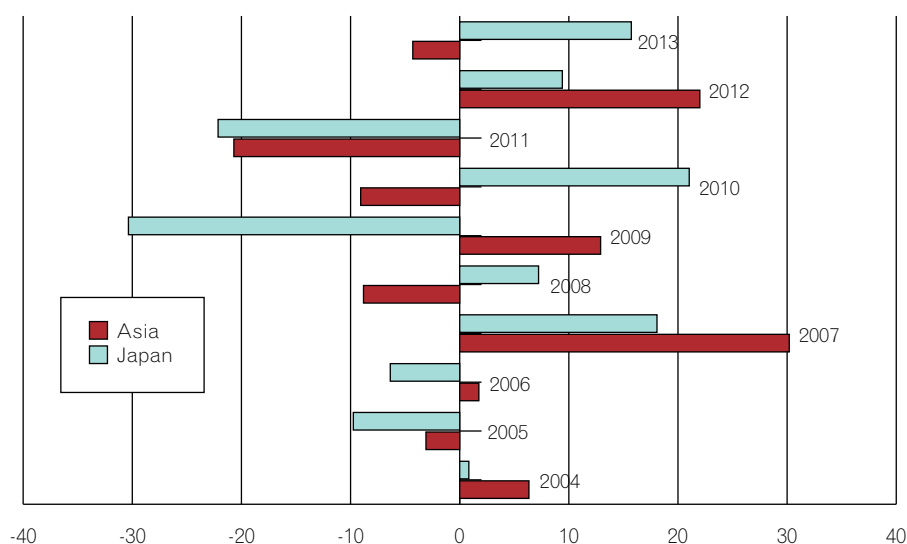
Figure 30: Regional real estate securities funds performance 2004-2013



Source: Consilia Capital

The next step is to look at the performance relative to US Funds. The reason for this is that, given the dominance of the US in the global listed market, the decision to go global requires evidence that Asian and Japanese funds can contribute to performance. In simplistic terms Figure 31 demonstrates this clearly. In only two of the years (2005 and 2011) did both Asian and Japanese funds underperform US funds.

Figure 31: Performance relative to US REIT funds 2004-2013



Source: Consilia Capital

Having established that in raw performance terms Asian and Japanese funds should be included, we come to the question of diversification. To provide a convincing case for inclusion, we need to demonstrate that Asian and Japanese real estate securities funds have a lower level of correlation to the US and European funds. If not, then the diversification benefits will be questionable. Using the same performance statistics, we can see in Figure 32 that the correlation of Asian funds to European and US funds is below 90%, and interestingly, below 72% to Japanese funds. By contrast US funds have a correlation of 90% with European funds.

Figure 32: Ten year correlation between funds

	Asia	Japan	Europe	US	Global
Asia	n/a				
Japan	72%	n/a			
Europe	87%	69%	n/a		
US	85%	74%	90%	n/a	
Global	96%	74%	93%	96%	n/a

Source: Consilia Capital

7. THE IMPACT OF CORPORATE GOVERNANCE ON ASIAN REITS

The increased significance of Asian REITs in the global real estate market makes it important to assess the role of corporate governance on their valuation and performance. This is particularly relevant considering that corporate governance has been viewed as one of the main drivers for future development of the REIT market in Asia (Newell and Osmadi, 2010).

In 2012, Essec Business School, supported by APREA, pioneered the construction of the first corporate governance rating index that is especially designed for Asian REITs, known as the R-Index. This consists of 27 internal and external corporate governance factors that are divided into eight corporate governance categories covering the main agency issues pertaining to the Asian REIT structure. The categories are board matters, audit committee, remuneration matters, REIT organisation, fees, related party transactions (RPTs), gearing and ownership.

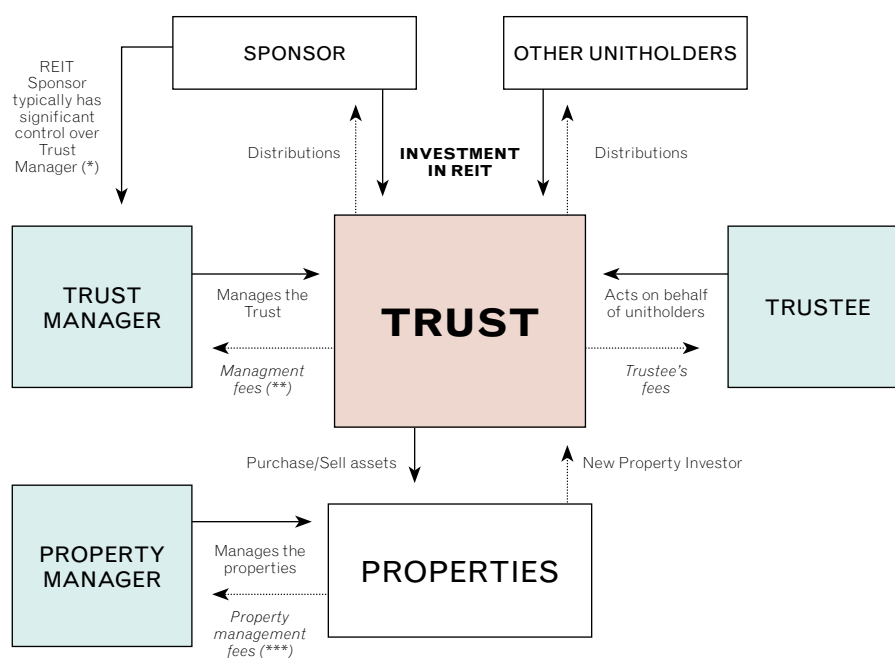
Lecomte and Ooi (2012) use the R-Index to investigate the impact of corporate governance on the performance of 20 S-REITs between 2002 and 2008. They find that there has been a slight improvement on the S-REIT index score from an average score of 18.5 in 2003 to an average score of 23.4 in 2008. In their empirical analyses, they find that stronger corporate governance helps to align the interests of managers with that of unitholders. Better governed REITs are also subject to less information asymmetry and are positively valued by investors in the capital market as indicated by better stock performance.

In this report, we evaluate existing studies that have examined the role of sponsors in Asian REIT performance and valuation.

THE REIT SPONSOR RELATIONSHIP

Asian REITs are typically formed as a separate investment vehicle by their sponsors. The sponsors play a pivotal role as they are the originator of the REIT and the entities that first place most of the properties into the REIT at its initial time of listing. At the IPO, the sponsor often establishes a subsidiary company to serve as REIT manager while retaining substantial unitholdings in the REIT (Figure 33). The interrelatedness between sponsor and manager can potentially lead to conflicts of interest between them and other unitholders.

Figure 33: Typical structure of an externally managed REIT (with sponsor)



Source: Lecomte and Ooi (2012)

(*) Sponsor has a significant unitholding in the REIT

(**) Management fees include base fee, performance fees and acquisitions

(***) Property management fees might include leasing commissions

Figure 34 shows that more than 19% of the total Asian REIT unitholding are in the hands of their sponsors. In Malaysia, sponsors hold around 37% of the REIT unitholdings. Sponsors also have significant control in Singapore and Hong Kong, with an average of 29% and 26% unitholding respectively. Sponsor ownership in J-REITs constitutes nearly 9% of total REIT units. As major unitholders in the REIT and controllers of the manager, sponsors have substantial influence over the management, financing and investment policies of the REITs.

Figure 34: Profiles of Asian REIT sponsors between 2002 and 2012

	Japan	Singapore	Malaysia	Hong Kong	Total
	Mean	Mean	Mean	Mean	Mean
Sponsor Ownership (%)	8.6	29.1	37.3	26.0	19.0
Developer Sponsor (%)	57.8	84.1	91.4	86.5	71.2

Source: Prima, Stevenson and Wyatt (2013)

In terms of sponsor type, more than 70% of the Asian REITs are backed by property developers. This has signified the importance of REITs as an 'exit strategy' for developer sponsors. The presence of developer sponsors is the strongest in Malaysia. On average, about 91% of M-REITs have property developers as their sponsors. In contrast, Japan has the lowest number of REITs that are backed by developers. Of the total J-REIT sample, around 40% of them are backed by either financial institutions, asset managers or other real estate related institutions.

IMPLICATIONS OF THE REIT SPONSOR RELATIONSHIP

A growing number of studies have examined the role of sponsors in REIT valuation and performance. Wong et al. (2013) find that an increase in sponsor ownership leads to a higher level of IPO underpricing. This is indicative of the potential moral hazard problems that are associated with the sponsors in the aftermarket.

Ooi et al. (2012) examine the role of sponsors by looking at the effects of related party transactions (RPTs) on Asian REIT valuations. They find that RPTs, particularly in relation to asset acquisition, lead to higher REIT valuations. This seems to suggest that investors favour the presence of sponsors who are able to provide REITs with a strong development pipeline or channels of properties for future acquisition.

Kudus and Sing (2011) analyse the impact of sponsor ownership on the levels of board independence and Asian REIT performance using a sample of 75 REITs between 2003 and 2007. With insider (affiliated director) ownership as a proxy for sponsor ownership, they find that REITs with substantial insider ownership have superior performance and higher levels of board independence compared to REITs with lower levels of insider ownership. Their findings appear to indicate that insiders are not entrenched when they retain significant unitholdings in the REIT.

Prima, Stevenson and Wyatt (2013) extend Kudus and Sing's (2011) study by expanding the sample size to 87 REITs and the sample period to 2012, to incorporate the role of REIT sponsors during the GFC. Their study also proposes an alternative measurement to calculate the level of sponsor ownership in the REIT. They provide some empirical evidence that an increase in sponsor ownership leads to higher stock return and operating performance both for the whole sample period and financial crisis period. Collectively, their results denote that business relationships with sponsors can bring various benefits and support to REITs. Sponsors with strong track records and reputation are able to provide REITs with managerial expertise and a strong development pipeline for future acquisition.

Furthermore, sponsors are able to provide assistance to REITs at the time of capital raising. Financial institutions are more likely to lend to REITs that are backed by strong sponsors. Sponsors may also support them by subscribing to their pro rata entitlement or excess rights during equity offerings. During financial crisis periods where access to external financing is limited, REIT sponsors can also act as a lender of last resort.

Overall, existing studies appear to suggest that investors do not need to be concerned about potential agency conflicts associated with REIT sponsor relationships. This is because the interest of REIT managers and sponsors are likely to be significantly aligned with that of other unitholders as most sponsors hold significant amount of unitholdings in the REIT. In addition, given the development-driven nature of the Asian REIT market, the support provided by the sponsors (especially developers) is of particular significance. This has seen strong sponsor backing as one of the important drivers of the growth of Asian REIT markets in the past decade.

ASIAN REIT MANAGER'S REMUNERATION STRUCTURE

Overview of the REIT manager's fee structure

Asian REITs are characterised by an organisational structure that is different from US counterparts. Most REITs in Asia employ an externally managed structure whereas most REITs in the US are internally managed. Under this structure, management duties such as property management, financing and operations are carried out by an external asset management firm. In return, the REIT manager charges various fees for its services. Therefore, it is advisable that investors should consider these fees and charges which might be involved before investing in a REIT. Figure 35 provides an overview of Asian REIT managers' remuneration structure.

Figure 35: Manager's fee structure of Asian REITs

Country	Base Fee		Performance Fee		Acquisition Fee Range (% of acquisition price)	Divestment Fee Range (% of disposal price)
	Range (%)	Basis	Range (%)	Basis		
Singapore	0.1-0.5	• Asset value	0.1 - 5.25	• Net Property Income • Dividend per Unit • Gross Profit • Gross Revenue • Benchmark Returns • Net Income	1 - 1.5	0.3 - 0.5
Malaysia	0.1 - 1	• Net Asset Value • Total Asset Value • Gross Asset Value	2.5 - 5	• Net Property Income • Profit	1	0.5
Hong Kong	0 - 0.5	• Asset Value • Gross Asset Value	3 - 12	• Net Property Income	1	0.5
Japan	0.15 - 5	• Asset Value • Total Asset • Revenue	0.4 - 5	• Income before Tax • Book value of equity	0 - 1	0.5 - 1

Source: Authors' compilation from Annual Reports and IPO Prospectus of 23 S-REITs, 12 M-REITs, 7 HK-REITs and 5 J-REITs

A REIT manager usually receives two types of management fee: a base fee and a performance fee. A base fee is typically based on the value of assets under management (AUM) whereas the performance fee is based on the income from portfolios. Other bases for a performance fee include a percentage of revenue and profit, growth in DPU and relative performance over benchmark indices. In addition to these two fees, managers are also able to charge additional fees for acquisition and divestment activities, which are usually around 1.0 % of acquisition price and 0.5% of disposal price respectively.

Furthermore, some managers also offer services for property management and leasing. The fees for these services are separate from management fees. On top of the aforementioned fees, REIT managers might also charge additional fees for early termination and development projects.

Does the manager's fee structure matter?

Ooi (2010) assesses the impact of managerial fee structures on IPO and post IPO performance of 20 REITs in Singapore. He finds that the market positively values REITs that pay their managers with a low base fee and high performance fee. This result seems to suggest that REITs with higher base fee rates are associated with greater moral hazard problems compared to REITs that charge higher incentive fees based on predetermined performance levels. His findings further reveal that REIT post IPO performance decreases with the rate of base fee and increases with a performance-based fee.

8. REGULATORY CHANGE

ARE THERE POTENTIAL CHANGES TO REIT LEGISLATION THAT COULD FURTHER INCREASE DEMAND?

Many Asian REIT market regulators and policy makers have continuously improved regulatory provisions since the introduction of the REIT regime in 2001. This supportive local regulatory environment has been a contributing factor to the rapid growth of the Asian REIT market in the past decade. Figure 36 provides several examples of regulatory reforms in the Asian REIT industry.

Figure 36: Examples of Asian REIT regulatory reforms

2003:

- J-REIT tax reform: rate on capital gains and dividends are reduced from 20% to 10%
- Allowance for fund of fund to invest in REITs. J-REITs can also be placed in fund of fund

2005:

- Revision to the HK-REIT codes that removed the geographic restrictions of assets held in HK-REITs
- Revision to the Manager removal provision for S-REITs that changed the threshold requirement for Manager removal from an extraordinary resolution to an ordinary resolution.
- A stamp duty remission for S-REITs

2007:

- The extension of takeover and merger provision codes to S-REITs

2010:

- S-REITs are now required to hold an AGM
- Revision to the Manager removal provision for HK-REITs that changed the threshold requirement for Manager removal from an extraordinary resolution to an ordinary resolution.
- The extension of takeover and merger provision codes to HK-REITs and M-REITs

Asian REIT market regulators and governments are planning to implement waves of regulatory changes in the near future in accordance with market demands and conditions. Potential future regulatory reforms include:

- An introduction of a new system that would allow J-REITs to carry out right issues
- An extension of insider trading rules to investment in units of J-REITs
- Permission for HK-REITs to undertake limited property development activities
- Recategorisation of HK-REITs under the Mandatory Provident Fund Schemes Regulation

These changes will increase the attractiveness of Asian REITs to global investors and facilitate further development of the Asian REIT markets in the future.

9. MARKET PERCEPTIONS OF THE ASIAN LISTED REAL ESTATE MARKET

We have undertaken informal interviews with fund managers (on a non-attributable basis) to determine their views on the Asian REIT market. Below is a summary of our findings:

- Overall, fund managers are very pleased with the development of the Asian REIT sector in the little more than ten years since REITs were first introduced. The success is underlined by the consistent growth in both the number of listed REITs and by the total market capitalisation of the sector
- Asian REITs now make up approximately 45% of the overall listed real estate index. Over time they might be expected to dominate as they do in the respective local real estate indices in the US and Australia, where REITs have been listed for several decades more
- The main benefit of REITs is that they offer, or are perceived to offer, a different risk-return profile when investing in diversified real estate in Asia. Further, they avoid many of the pitfalls of holding physical property or real estate developer equities, such as a lack of liquidity or pricing transparency

Key issues to address are as follows:

1. Generalist Investor misconceptions -
 - Residential exposure: REITs predominantly invest in commercial real estate like logistics, office, shopping malls and even hospitals. The vast majority in Asia do not invest in residential. There is a common misconception that all real estate is the same. It is not and different asset classes trade in different cycles. As a result, commercial REITs can often suffer in share price terms because of investor fears about residential markets
 - Emerging market exposure: Asian REITs are listed in developed markets (90% in Japan, HK and Singapore), and less so in emerging markets and are not suited to listing in many emerging markets because REITs rely on strong regulation, rule of law and reliable property valuation which is often lacking in emerging markets
2. Regulator fears -
 - Loss of tax revenue: Typically when a REIT regime is first considered to be introduced there is a concern that tax revenue will be lost due to the tax transparency of REITs. Studies have shown that the multiplier effects of introducing REITs far outweigh any headline loss of tax revenue
 - Regulators need to get comfortable with how REITs operate and continually seek to improve legislation. In Hong Kong, the Securities and Futures Commission (SFC) has initiated a consultation process to improve the regulation of REITs as the Hong Kong REIT market has not grown as significantly as other markets such as Singapore
3. Specialist investor concerns -
 - REIT managers' conflicts of interest. A REIT manager needs to combine good property management with good capital management, which are two different skills
 - Buying assets to increase assets under management (and therefore fees) rather than because the acquisition makes sense from the REIT unitholder's perspective
 - Dilutive equity raising. Typically this is done through deeply discounted rights issues which are dilutive to both DPU/share and NAV/share

10. CONCLUSIONS

Growth of the market

Asia Pacific has experienced similar levels of growth to the US since the Asian financial crisis and is now valued at US\$542 billion. From a peak of over 50% in the late '90s and a low of around 20% 10 years ago, it now represents around 35% of the global listed real estate market.

Performance analysis

Looking at the performance of Asian listed real estate relative to the global real estate market, we can see that with the exception of the period around the Asian financial crisis the Asian listed sector has performed consistently well in both local currency and US\$ terms against a global benchmark.

		Global US\$	Asia Pac US\$	Difference
1992-97	Pre Asian crisis	82%	120%	38%
1997-9	Asian crisis	-13%	-26%	-13%
1999-2002	TMT boom and bust	12%	-12%	-24%
2002-2007	Bull market	182%	223%	41%
2007-2009	GFC	-52%	-56%	-4%
2009-2013	Post GFC	125%	159%	34%
2013 -	Tapering	-1%	-1%	0%

In addition, our correlation analysis highlights the importance of Asian real estate in providing diversification benefits with both stocks and bonds. Emerging Asian markets provide stronger diversification benefits with both asset classes, whereas developed Asian markets provide similar benefits with the Australian, UK and US markets.

Portfolio analysis

Given the dominance of the US in the global listed market, the decision to go global requires evidence that Asian and Japanese funds can contribute to performance. In only two of the ten years (2005 and 2011) did both Asian and Japanese funds underperform US funds. The correlation of Asian funds to European and US funds is lower than for US funds, and below 72% to Japanese funds. By contrast US funds have a correlation of 90% with European funds.

Corporate governance

One of the potential areas of concern for investors is the REIT sponsor relationship which occurs in Asian markets. Overall, existing studies appear to suggest that investors do not need to be concerned about potential agency conflicts associated with REIT-sponsor relationships. This is because the interest of REIT managers and sponsors are likely to be significantly aligned with that of other unitholders as most sponsors hold significant amounts of unitholdings in the REIT. In addition, given the development-driven nature of the Asian REIT market, the support provided by the sponsors (especially developers) is of particular significance. This has seen strong sponsor backing as one of the important contributors to the growth of Asian REIT markets in the past decade.

Regulatory changes

One of the key elements of a successful REIT market is that the regulators continually revise legislation to maintain growth in the market and reflect trends in international practices. We believe that the current developments (particularly the proposed changes to the Hong Kong REIT regulations) would increase the attractiveness of Asian REITs to global investors and facilitate further development of the Asian REIT markets in the future.

Market perception

There are areas where investors believe further improvement could be made, namely:

- REIT managers combining good property skills with good capital management skills
- Buying assets because the acquisition makes sense from the REIT's unitholder perspective, not just to increase assets under management (and therefore fees)
- Minimising heavily dilutive equity issues

REFERENCES

- Bond, S., Karolyi, A., and Sanders, A. (2003) 'International real estate returns: a multifactor, multicountry approach.' *Real Estate Economics*, 31(3), pp. 481-500.
- Chau, K. W., Wong, S. K., and Newell, G. (2003). 'Performance of property companies in Hong Kong: a style analysis approach.' *Journal of Real Estate Portfolio Management*, 9(1), pp. 29-44.
- Conner, P., and Halle, M. R. (2006). 'Asian REITs: A new dimension for investors.' *Real Estate Finance Journal*, 22(1), pp. 45-54.
- Eichholtz, P. (1997). 'Real estate securities and common stocks: a first international look.' *Real Estate Finance*, 14(1), pp. 70-74.
- Eichholtz, P., Huisman, R., Koedijk, K., and Schuin, L. (1998). 'Continental factors in international real estate returns.' *Real Estate Economics*, 26(3), pp. 493-509.
- Garvey, R., Santry, G., and Stevenson, S. (2001). 'The linkages between real estate securities in the Asia Pacific.' *Pacific Rim Property Research Journal*, 7(4), pp. 240-258.
- Kudus, S. S. and Sing, T. F. (2011). 'Interest alignment and insider shareholdings in the emerging Asian REIT markets.' *Journal of Real Estate Portfolio Management*, 17(2), pp. 127-138.
- Lecomte, P. and Ooi, J. T. (2012). 'Corporate governance and performance of externally managed Singapore REITs.' *The Journal of Real Estate Finance and Economics*, pp. 1-21.
- Liow, K. H. (1997). 'The historical performance of Singapore property stocks.' *Journal of Property Finance*, 8 (2), pp. 111-125.
- Liow K. H. (2000). 'The long term investment performance of Singapore real estate and property stocks. *Journal of Property Investment & Finance*, 19(2), pp. 156-174.
- Liow, K. H. (2008). 'Financial crisis and Asian real estate securities market interdependence: some additional evidence.' *Journal of Property Research*, 25(2), pp. 127-155.
- Liow, K. H., and Adair, A. (2009). 'Do Asian real estate companies add value to investment portfolio?' *Journal of Property Investment & Finance*, 27(1), pp. 42-64.
- Liow, K. H., and Sim, M. C. (2006). 'The risk and return profile of Asian real estate stocks.' *Pacific Rim Property Research Journal*, 12(3), pp. 283-310.
- Lin, T. C., and Lin, Z. H. (2011). 'Are stock and real estate markets integrated? An empirical study of six Asian economies.' *Pacific-Basin Finance Journal*, 19(5), pp. 571-585.
- Liu, C., and Mei, J. (1998) 'The predictability of international real estate markets, exchange risks and diversification consequences.' *Real Estate Economics*, 26(1), pp. 3-40.
- Newell, G., Chau, K. W., Wong, S. K., and McKinnell, K. (2005). 'Dynamics of the direct and indirect real estate markets in China.' *Journal of Real Estate Portfolio Management*, 11(3), pp. 263-279.

- Newell, G., Hwa, T. K., and Acheampong, P. (2002). 'Listed property trusts in Malaysia.' *Journal of Real Estate Literature*, 10(1), pp. 109-118.
- Newell, G., and Kamineni, R. (2007). 'The significance and performance of real estate markets in India.' *Journal of Real Estate Portfolio Management*, 13(2), pp. 161-172.
- Newell, G., and Osmadi, A. (2009). 'The development and preliminary performance analysis of Islamic REITs in Malaysia.' *Journal of Property Research*, 26(4), pp. 329-347.
- Newell, G., and Osmadi, A. (2010). 'Assessing the importance of factors influencing the future development of REITs in Malaysia.' *Pacific Rim Property Research Journal*, 16(3), pp. 358-374.
- Newell, G. and Peng, H. (2012). 'The significance and performance of Japan REITs in a mixed-asset portfolio', *Pacific Rim Property Research Journal*, 18(1), pp. 21-34.
- Newell, G., Wu, Y., Chau, K. W., and Wong, S. K. (2010). 'The development and performance of REITs in Hong Kong.' *Pacific Rim Property Research Journal*, 16(2), pp. 191-206.
- Nguyen, T.K. (2010). '*The Significance and performance of listed property companies in Vietnam.*' Paper presented at the 16th Annual PPRES Conference, Wellington, New Zealand.
- Ong, T. S., Teh, B. H., and Chong, M. P. (2011). 'A study on the performance of Malaysian real estate investment trusts from 2005-2010 by using net asset value approach.' *International Journal of Economics and Research*, 2(1), pp. 1-15.
- Ooi, J. T. L., and Liow, K. H. (2004). 'Risk-adjusted performance of real estate stocks: evidence from developing markets.' *Journal of Real Estate Research*, 26(4), pp. 371-396.
- Ooi, J. T. L., Newell, G., and Sing, T. F. (2006). 'The growth of REIT markets in Asia.' *Journal of Real Estate Literature*, 14(2), pp. 203-222.
- Ooi, J. T. L., Wong, W. C., Ong, S. E. and Downs, D. H. (2012, April). '*Related party transactions, wealth expropriation and firm valuation: Evidence from REITs.*' Paper presented at the 28th Annual American Real Estate Society Meeting, St. Petersburg, FL.
- Peng, H. and Newell, G. (2012). 'The role of Taiwan REITs in investment portfolios.' *Pacific Rim Property Research Journal*, 18(1), pp. 67-80.
- Pham, A. K. (2011). 'The significance and performance of South Korean REITs in a mixed-asset portfolio.' *Journal of Real Estate Literature*, 19(2), pp. 373-390.
- Pham, A. K. (2012). 'The dynamics of returns and volatility in the emerging and developed Asian REIT Markets.' *Journal of Real Estate Literature*, 20(1), pp. 79-96.
- Prima, A. D., Stevenson, S. and Wyatt, P. (2013). '*Sponsor, Corporate Governance and Asian REIT Performance*'. Paper presented at the European Real Estate Society 20th Annual Conference, Vienna, Austria.
- Serrano, C., and Hoesli, M. (2009). 'Global securitised real estate benchmarks and performance.' *Journal of Real Estate Portfolio Management*, 15(1), pp. 1-19.
- Wong, W. C., Ong, S. E. and Ooi, J. T. L. (2013). 'Sponsor backing in Asian REIT IPOs.' *The Journal of Real Estate Finance and Economics*, 46(2), pp. 299-320.
- Wong, A., Tong, C., and Keow Y. M. (2012). 'Performance and role of Singapore REITs in multi-asset class investment portfolio'. *Journal of Management Research*, 4(1), pp. 1-27.

