

THE SIGNIFICANCE AND PERFORMANCE OF LISTED PROPERTY COMPANIES IN ASIAN DEVELOPED AND EMERGING MARKETS

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ABSTRACT

Whilst property has become a major global investment class beside shares and bonds, listed property companies also take a higher exposure in the Asian stock markets compared to the other continents. This reflects an increasingly significant role of Asian property securities in the regional and global context. This study presents a profile and performance analysis of the listed property companies for 13 Asian countries according to the level of market maturity as the developed, emerging and lesser emerging tiers over Jan. 1999 – Dec. 2009. This covers the developed market tier (Japan, Hong Kong, Singapore), emerging market tier (Malaysia, Korea, Taiwan, Thailand) and the lesser emerging market tier (China, India, Indonesia, Philippines, Sri Lanka and Vietnam). The research shows the tier of the lesser emerging markets in Asia have the potential to provide enhanced property investment returns.

Keywords: Listed property companies, Asia, developed, emerging, lesser emerging market, tier index, performance analysis, risk-adjusted returns

INTRODUCTION

With the recent increasing significance of property securities in financial investment markets, Asian property companies and REITs have been brought onto the radar of regional and international investors. The significance of Asian property in the global context is evidenced by its market value in excess of 44% of global market (Macquarie, 2010) and property securities accounting for more than 11% of Asian stock markets compared to the world average of more than 5% (EPRA, 2010).

With the fast growing economies throughout the continent, Asia has national markets at the various levels of maturity in terms of market complexity, transparency and competitiveness. International investors may find themselves more comfortable with their informed investment decisions in the established property markets such as Japan, Hong Kong and Singapore, which have been known for their property market transparency and also the International Financial Centres of Asia. To a lesser degree, investors with more appetite of risk would also like to go into Malaysia, South Korea,

Taiwan or Thailand. When the investment opportunities are becoming scarce or the general business environment is enhanced, investors can go to other risky but significantly growing markets such as China, India, Indonesia, the Philippines, Vietnam or Sri Lanka. Beside their differences in the country economic prospects, these 13 countries present different levels of market maturities and performance stabilities. Experienced through recent financial turbulence, however, investors may become conservative to have less investment exposure to the emerging markets with more volatility and uncertainty.

With its property market dynamics, studies of the Asian property markets are also found at various levels and aspects. On a country basis, there are many studies focusing on analysing, assessing performance in property investment. Among these country studies are Singapore (eg: Liow, 2000, 2001a, 2001b; Ong, 1994, 1995; Sing and Low, 2000), Hong Kong (eg: Chau et al, 2001, 2003; Newell and Chau, 1996; Newell et al, 2004, 2007; Schwann and Chau, 2005), China (eg: Newell et al, 2004, 2005, 2007, 2009), India (eg: Newell and Kamineni, 2007), Vietnam (eg: Nguyen, 2010). The more transparent and established the market is, the more studies on the market are found.

On a broad context, studies on Asian property markets found diversification benefits from adding Asian property securities in diversified portfolios on the regional and global basis (eg: Addae-Dapaah and Loh, 2005; Bond et al, 2003; Gerlach et al, 2006; Jin et al, 2007; Liow, 2007, 2008; Liow and Adair, 2009; Liow and Sim, 2006; Mei and Hu, 2000, Ooi and Liow, 2004; Wilson et al, 2007; Wilson and Zurbruegg, 2004). Some found greater benefits from Asian property than from the more traditional property markets (Bond et al, 2003), as well as diversification benefits from investing in property securities in several Asian countries (eg: Garvey et al, 2001; Liow and Adair, 2009). A higher growth potential from the investment perspective in emerging markets was also found; however, this diminished in the long-term (Conner et al, 1999).

While there are a number of studies on either individual or several country markets, these studies are limiting to considering countries as separate entities. No studies assess investment performance of Asian countries in a unified context for those markets that share relatively similar characteristics. This study aims to analyse the Asian property markets at various levels of maturities and business environments using a unified and simplified system. The purpose of this research is to:

- assess Asian property markets as a whole, where an index can indicate the overall performance of several markets
- obtain a deeper and systematic vision into these dynamic Asian property markets with regard to emerging markets versus developed markets

- build a simple tool to measure investment performance of Asian property markets, particularly present 3 indices in accordance with 3 market-maturity levels from 13 Asian countries.

As such, this study will use tier indices to address the country markets with similar characteristics. Based on such common qualitative rankings as market transparency and global competitiveness, this study groups the Asian countries into three tiers; namely the developed markets (Japan, Hong Kong, Singapore), emerging markets (Malaysia, Korea, Thailand, Taiwan) and lesser emerging markets (China, India, Indonesia, Philippines, Sri Lanka and Vietnam). Beside the observation of Asian countries from such a different aspect, the tier indices are also considered as an effective tool to assess the property investment performance in Asia. This is believed to be one of a few studies on the Asian property companies in their groups of similar market maturities and risks. This is also the first study to put Sri Lanka and Vietnam into consideration as the participants of continental asset classes, with Sri Lanka (from July 2002) and Vietnam (from January 2007) assessed over shorter time series than the other observed markets in Asia.

THE SIGNIFICANCE OF PROPERTY MARKETS IN ASIA

Table 1 presents the overall significance of Asian property securities in a global context as at June 2010. In terms of market size, the 4 largest Asian markets (Hong Kong, £199.4 billion; Japan, £70.0 billion; Singapore, £61.4 billion and China, £57.3 billion) are also in the global top 5, only behind the US property securities market (£224.4 billion). The significance of Asian property in the global context is clearly evident with its market value in excess of 44% of the global market (Macquarie, 2010) and property securities accounting for more than 11% of stock markets compared to the world average of more than 5% (EPRA, 2010). Asian property securities always take the highest percentage share in the securities market, compared with those seen on the other continents.

Out of the tier 3 countries, China and India are easily taking the lead (ranked #5 and #11 at a global level respectively, see Table 1) due to their geographically biggest market size in Asia. Greater China also reported the first recovery from the GFC among the Asian property markets in the first quarter 2010, whilst overall investment activities in Asia were starting picking up in the second half of 2009 on the back of higher prospective returns and ample liquidity. In a broad context, direct commercial property transaction volumes in Asia-Pacific were recorded at USD23.3 billion, an increase of 25% quarter-on-quarter in the first quarter 2010 or 55% year-on-year; with cross-border activity growing by 37% quarter-on-quarter in the first quarter 2010 (JLL, 2010). This determines a strong recovery and a centre of Asian property globally.

Table 1: Significance of property securities markets in Asian countries: June 2010

Country	Number of property securities	Market capitalisation	Percentage of Asia market	Percentage of global market	World ranking (by £)
Hong Kong	134	£199.4B	44.4%	20.3%	2
Japan	143	£70B	15.6%	7.1%	3
Singapore	65	£61.4B	13.7%	6.3%	4
China	80	£57.3B	12.8%	5.8%	5
India	42	£19.5B	4.3%	2.0%	11
Philippines	35	£9.2B	2.1%	0.9%	15
Taiwan	47	£9.1B	2.0%	0.9%	16
Malaysia	81	£8.7B	1.9%	0.9%	17
Thailand	52	£7.0B	1.6%	0.7%	22
Indonesia	40	£5.3B	1.2%	0.5%	26
Vietnam	5	£1.2B	0.3%	0.1%	40
South Korea	7	£0.3B	0.1%	0.0%	47
Sri Lanka	16	£0.2B	0.0%	0.0%	48
Total Asia	747	£448.6B	100%	44.7%	
Total Global	1995	£980.4B		100%	

Source: Macquarie Securities (2010)

The increasing significance of the property markets in Asia has resulted from the improvement in these markets over recent years. This is evidenced with the enhanced transparency rankings in 2010, where India Tier-3 cities, Indonesia and China Tier-2

cities have seen their transparency ranking upgraded to semi-transparency from low transparency in 2008. As such, this continent sees 4 countries (Hong Kong, Japan, Singapore and Malaysia) at a transparent ranking, 6 countries at semi-transparent (Taiwan, Thailand, South Korea, India, the Philippines, Indonesia, China Tier 1, 2), with China Tier 3 and Vietnam at low transparency and Sri Lanka not ranking. This also sees China and India as the most notable improvers in terms of global transparency rankings (see Table 2).

Table 2: Maturity profile by tier

	Transparency (2010)	Global competitiveness (2008)
Tier 1		
Singapore	Transparent	#5
Japan	Transparent	#9
Hong Kong	Transparent	#11
Tier 2		
Malaysia	Transparent	#21
South Korea	Semi-transparent	#13
Taiwan	Semi-transparent	#17
Thailand	Semi-transparent	#34
Tier 3		
China – Tiers 1, 2	Semi-transparent	#30
Tier 3	Low transparent	
India	Semi-transparent	#50
Indonesia	Semi-transparent	#55
Philippines	Semi-transparent	#71
Vietnam	Low transparent	#70
Sri Lanka	N/A	#77

Sources: JLL (2010), WEF (2008), Macquarie Securities (2009)

Whilst almost all the Asian emerging property markets improved their transparency performance, reducing the gap to the other Asian developed property markets, the criterion of global competitiveness is considered a clearer border line amongst market tiers and a supportive ranking for this study. In terms of competitiveness, those in the developed tier are also at the higher rank, with the exception of Thailand (#34) being below China (#30). The categorising of the 2 biggest countries, China and India, in tier 3 is based more on their historical performance rather than on the forward time. As such, the limitation of this study is these countries, which could either be categorised in the tier 2 for their fast growing towards the other tier 2 countries or tier 3 for their characteristics closer to the other tier 3 countries.

With the dynamics and increasing growth in the Asian property markets, this study presents a self-built index for three levels of market development in the 13 Asian

countries. Although there are shortages of information in terms of either shorter time span (as in Vietnam) or informative business environment (as in Sri Lanka), the inclusion of Vietnam and Sri Lanka marks an analysis of the extended Asian listed property companies in a diversified investment environment as a whole. With these three constructed tiers, the Asian property markets will be assessed via performance of these three main tiers in terms of a risk-adjusted performance index of Asian developed, emerging and lesser emerging markets.

DATA SOURCES AND METHODOLOGY

Data sources

To construct tier indices, this study uses monthly price index and market value index data series from Datastream, over the period of January 1999 – December 2009 in local currency. The exchange rates are the month-end data series also employed from Datastream over the same period to adjust the price and market cap indices to a US Dollar basis. All the country markets are analysed over the full period, except for Sri Lanka which covers the shorter period of June 2002 – December 2009 due to the availability of data. Similarly, data about the listed property companies in Vietnam are also limited. Because the Vietnam property sector index is unavailable, the construction of this index is needed. To construct a property index for the Vietnam market, this study uses price and market cap series of the property companies listed on the Ho Chi Minh City Stock Exchange from Bloomberg to build a market cap weighted price index (see Table 3).

Table 3: Data sources by country markets

Country	Data series
Japan	Topix real estate - price index
	Topix real estate - market value
	Japanese yen to US\$ exchange rate
Singapore	Singapore-ds real - price index
	Singapore-ds real - market value
	Singapore \$ to US\$ exchange rate
Hong Kong	Hong Kong-ds real est inv - price index
	Hong Kong-ds real est - market value
	Hong Kong \$ to US\$ - exchange rate
Malaysia	Kuala Lumpur SE properties - price index
	Kuala Lumpur SE properties - market value
	Malaysian ringgit to US\$ exchange rate
Thailand	Thailand-ds real est - price index
	Thailand-ds real est - market value
	Thai baht to US\$ – exchange rate
Taiwan	djtm Taiwan real estate – price index
	djtm Taiwan real estate - market value
	Taiwan new \$ to US\$ - exchange rate
South Korea	Korea se construction - price index
	Korea se construction - market value
	South Korean won to us\$ (ko) - exchange rate
China	Shanghai SE real estate - price index
	Shanghai SE real estate - market value
	Chinese yuan to US\$ - exchange rate
Sri Lanka	Sri Lanka-ds real est - price index
	Sri Lanka-ds real est - market value
	Sri Lankan rupee to US\$ - exchange rate
India	S&P CNX construction - price index
	S&P CNX construction - market value
	Indian rupee to US\$ - exchange rate
Indonesia	Jakarta SE cnstr.property - price index
	Jakarta SE cnstr.property - market value
	Indonesian rupiah to US\$ - exchange rate
Philippines	Philippine-ds r/e hld & dvlp - price index
	Philippine-ds r/e hld & dvlp - market value
	Philippine peso to US\$– exchange rate
Vietnam	Author’s collection and calculation from stock exchange and Bloomberg Vietnam dong to US\$ - exchange rate

Methodology

To assess the performance of the three tiers, the market cap weighted-average tier return index is constructed. The local currency price and market cap indices are adjusted to a US Dollar basis using respective USD exchange rate series for the USD-adjusted return:

$$R_{i,t} = \frac{P_{i,t}}{P_{i,t-1}} \times \frac{X_{i,t-1}}{X_{i,t}} - 1$$

where $R_{i,t}$ is the USD-adjusted return on the country market i . $P_{i,t}$ and $X_{i,t}$ are the property price index in local currency and exchange rate at the end of period t respectively. The tier indices and returns are calculated as follows:

$$RI_t = \left[\frac{\sum (R_{i,t} \times M_{i,t-1})}{\sum M_{i,t-1}} + 1 \right] \times \text{base value}_{t-1}$$

where $M_{i,t}$ is USD-converted market cap of country i at period t . This formula is based on the assumption as once the fund is invested in market i , it is held for one period. As such, return is respectively reported on the market cap value of the previous period. The return indices are calculated for the three Asian property tiers, with the base value being 100 from February 1999.

Also, an analysis of overall performance of Asian individual countries is presented in profiles of return versus risk as a brief review of the separate markets. To assess the performance of regional tiers, the tier return indices are used to calculate the annualised return, risk and Sharpe ratio to assess the risk-adjusted returns of tier performance over the full period of January 1999 – December 2009. This period is broken down into two sub-periods of Jan. 1999 – Jun. 2007 and Jul. 2007 – Dec. 2009 to assess the impact of the global financial crisis. With regards to the diversification benefits, the correlation matrix within tier indices is also presented and discussed. Further, the risk profiles are presented in three-year rolling risks to assess the significance and stability of the 3 tiers. Finally, an assessment of optimal investment portfolios combining all considered asset classes are presented and discussed.

MARKET SIGNIFICANCE AND PERFORMANCE ANALYSIS

Country performance analysis

Figure 1 depicts the mean return and risk of the 13 countries over the full period of January 1999 – December 2009 where applicable. As can be seen from this graph, all countries were positioned close to each other in risk-return relations with the exception of Taiwan as a negative outlier. India was best performed with highest

return and medium risk whilst Taiwan, at the other extreme, exhibited a market of the highest risk and low return. The Philippines and Malaysia were the two countries producing the lowest return with medium risk.

Given most of the countries are emerging markets, downside risk is watched out for investment risk. Figure 2 showed a picture milder than that seen in Figure 1. Country downside risks were ranged from 5% to less than 11%. India saw the highest returns combining highest downside risk, with Malaysia being positioned at lowest return - lowest downside risk. Among the underperformed markets are Taiwan, the Philippines and Korea which saw higher downside risk while brought lower return. Vietnam was positioned as high return and low risk; however, this was over the shorter time span and thus needs more observations for high reliability.

Figure 1: Returns – risk profile of 13 countries

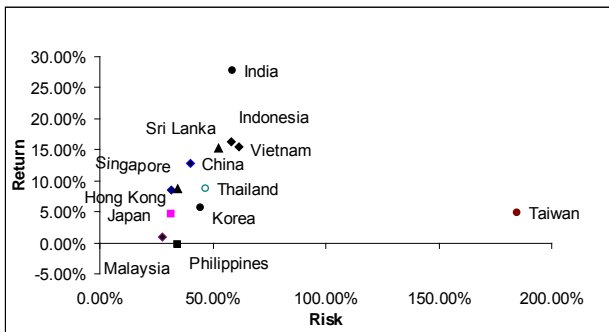
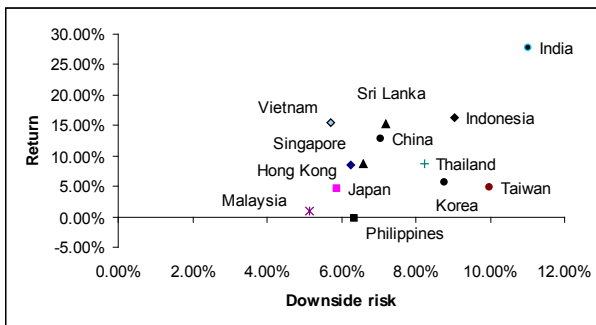


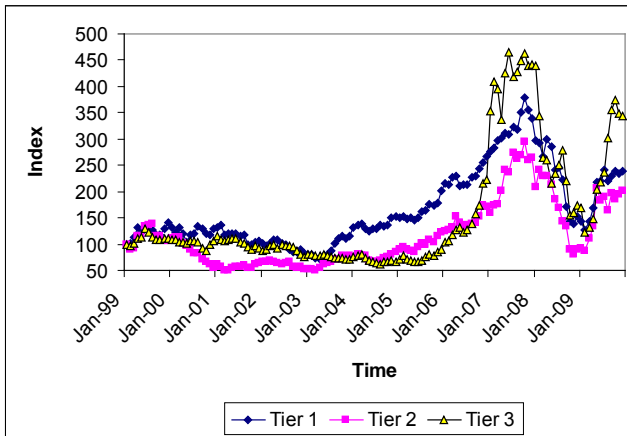
Figure 2: Return versus downside risk profile of 13 countries



Tier return indices

Figure 3 illustrates tier return indices of the 3 tiers built from the 13 Asian countries, in which tier 1 stands for the developed markets, tier 2 the emerging markets and tier 3 the lesser emerging markets as discussed in previous sections. The fluctuation level of the tier indices over time shows tier 1 the most stable market over the full period whereas tier 3 reached the highest peak, with tier 2 the lowest peak at the boom period. Tier 2 also saw the deepest trough in the bear period.

Figure 3: Return indices of three Asian property tiers



Tier risk-adjusted return analysis

Table 4 presents the risk-adjusted performance of the 3 tiers over the full period of Jan. 1999 – Dec. 2009 in US Dollar currency. As can be seen from this table, tier 3 provided the highest annual return of 11.97% p.a. (with 9.13% p.a. when excluding Sri Lanka and Vietnam), outperforming tier 1 (8.28% p.a.) by more than 48% and tier 2 (6.63% p.a.) by more than 85%. Tier 3 saw its enhanced performance when adding Sri Lanka and Vietnam properties into the tier composition (11.97% versus 9.13% p.a.).

On a risk-adjusted basis, the performance ranking among three tiers remains unchanged, with tier 3 (Sharpe ratio = 0.24) best performing. Not far behind is tier 1 (Sharpe ratio = 0.20) and underperformed is tier 2 (Sharpe ratio = 0.10).

Table 4: Risk-adjusted returns performance: Jan.1999 – Dec. 2009

	Tier 1	Tier 2	Tier 3
An. Return	8.28%	6.63%	11.97% 9.13%*
An. Risk	26.76%	36.10%	37.11% 32.65%*
Sharpe Ratio	0.2	0.1	0.24 0.19*
Skewness	0.04	0.97	1.1 0.01*
Kurtosis	1.24	5.3	6.72 2.59*
Annual Downside Risk	18.43%	22.37%	22.81% 21.74%*

*: Tier 3 excludes Sri Lanka and Vietnam

Regarding a descriptive analysis of returns distribution, Table 4 also presents the skewness (S) and kurtosis (K) ratios of the 3 tiers. Tier 3 illustrated the most positive skewness (S=1.09). All three tiers showed a positive skewness, implying the mean return being closer towards the positive tail. In other words, the mean returns were greater than the respective peaks. Tier 1 showed the highest level of normal distribution among the 3 tiers.

Another aspect of tail thickness in distribution is kurtosis. All the tiers showed positive excess kurtosis indicating being leptokurtic. Tier 3 saw it highly leptokurtic (K= 6.72). Not far below this leptokurtic level was tier 2 (K=5.3) and tier 1 was again the highest degree of normal distribution (K=1.24) (see Table 4).

Given a highly asymmetric distribution in return and high volatility of the emerging property markets, downside risk is calculated to assess the risk of returns being lower than its mean. Tier 3 showed the highest level of downside risk (22.81%), with tier 2 (22.37%) and tier 1 (18.43%) showing the lower probabilities of falling to the lower-to-mean return.

Table 5: Return-to-risk analysis of Asian country property markets

	In local currency (*)	In US Dollar (*)	Currency appreciation (✓)
Hong Kong	0.2684 (6)	0.2682 (5)	
Singapore	0.2129 (7)	0.2515 (6)	✓
Japan	0.0848 (10)	0.1494 (9)	✓
Thailand	0.1809 (8)	0.1885 (8)	✓
Korea	0.1261 (9)	0.1257 (10)	
Malaysia	-0.0046 (12)	0.0301 (11)	✓
Taiwan	-0.0231 (13)	0.0259 (12)	✓
India	0.5164 (1)	0.4721 (1)	
China	0.2690 (5)	0.3175 (2)	✓
Sri Lanka	0.3364 (4)	0.2875 (3)	
Indonesia	0.3788 (2)	0.2801 (4)	
Vietnam	0.3418 (3)	0.2507 (7)	
Philippines	0.0441 (11)	-0.0081 (13)	

(*): figures in brackets are ranking order out of 13 countries

To analyse the source of the tier performance over the full period, Table 5 presents the risk-adjusted performance of each Asian country property market in terms of return-to-risk ratio in both local currency and US Dollars. Top 5 best performing countries were all in the tier 3 (India, Indonesia, Vietnam, Sri Lanka, China) in local currency. This list dropped Vietnam out and added Hong Kong in, however, when US Dollars was the benchmark currency. On the other hand, the bottom 5 performance saw one country of tier 3 (the Philippines) with three of tier 2 (Taiwan, Malaysia, Korea) and one of tier 1 (Japan) in both benchmarks though the order ranking was varied. This indicates the solid outperformance of individual tier 3 countries in both local currency and US Dollars.

Another significant issue is the role of currency exchange rate in the country performance during the observed period. The country performance of currency appreciation is recognised also in Table 5. During the period of Jan. 1999 – Dec. 2009, 6 Asian countries saw their currency appreciate compared to the US Dollar (Singapore, Japan, Thailand, Malaysia, Taiwan, China), with the most significant changes seen in Malaysia and Taiwan, from negative to positive return. Among the countries seeing their currency depreciation in value, Hong Kong and Korea saw a marginal change (-0.1%, -0.3% change for Hong Kong and Korea respectively¹), with the Philippines seeing the most striking depreciation in its currency (from positive to negative return).

Diversification benefits

With superior returns for tier 3, it is necessary to assess the diversification benefits of property securities across the 3 tiers. The correlation matrix in Table 6 presents the diversification benefits for property-only portfolios across the Asian markets. Over the period of Jan. 1999 – Dec. 2009, correlation coefficients of tier 1 with tier 3 ($r=0.15$) and tier 2 with tier 3 (0.16) were lower than the correlation of tier 1 with tier 2 ($r=0.61$). This indicates more diversification benefit from combining property securities in the lesser emerging markets (tier 3) with both the developed and emerging markets (tier 1 and 2 respectively) for the Asian investors.

Table 6: Correlation matrix: Jan. 1999 – Dec. 2009

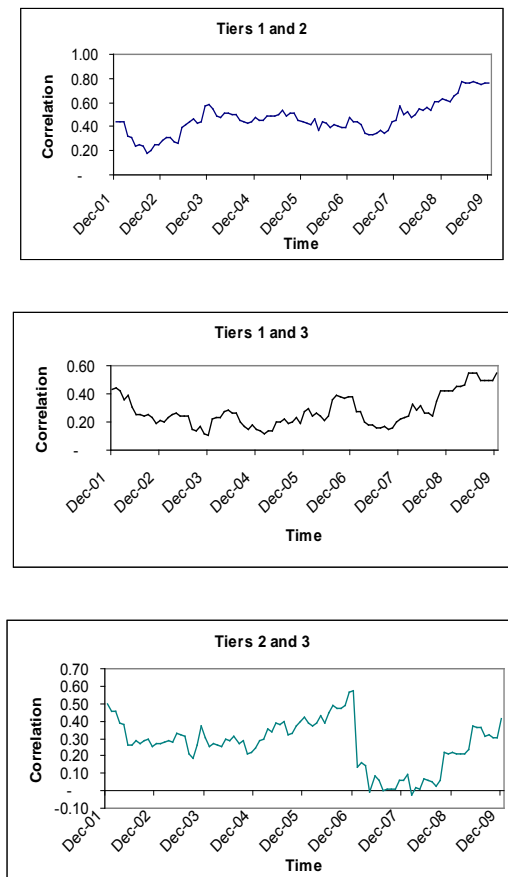
	Tier 1	Tier 2	Tier 3
Tier 1	1.00		
Tier 2	0.61*	1.00	
Tier 3	0.15 (0.59*)	0.16 (0.66*)	1.00

*: significant correlation ($P < 5\%$)

(): Correlations with tier 3 excluding Sri Lanka and Vietnam

¹ Percentage change = USD rate/local currency rate - 1

Figure 4: Three-year rolling correlations: Jan. 1999 – Dec. 2009



To more fully assess the change in portfolio diversification benefits for Asian property over Jan. 1999 – Dec. 2009, rolling three-year correlations were assessed for each pair of tiers (see Figure 4). The correlation of tier 1-2 has shown a steady increase over time, reflecting lesser diversification benefits. A combination of tier 1-3 showed a variable but increasing correlation from the end of 2003, reflecting some loss in potential diversification benefits; particularly since the GFC. Portfolios of tier 2-3 saw the highest correlation variation, reflecting a high uncertainty when combining these two markets. These rolling correlations for the tier 3 market were still below those seen for tier 1; thus reflecting superior portfolio diversification benefits by tier 3.

Efficient frontier and optimal asset allocation

Figure 5 and Table 7 present the efficient frontier and asset allocation for optimal investments across the 3 tiers. The optimal investment portfolio is constructed with minimum risk at each possible return. This sees the portfolio start from a combination of 61%, 8%, 31% of tier 1, 2, 3 respectively. Moving along the curve sees the increase in both returns and potential risks which is ended at 100% investment in tier 3 at 12.0% in return with 10.7% in risk. This also sees value added by including tier 3 in the property-only portfolios.

Figure 5: Efficient frontier and asset allocation diagram

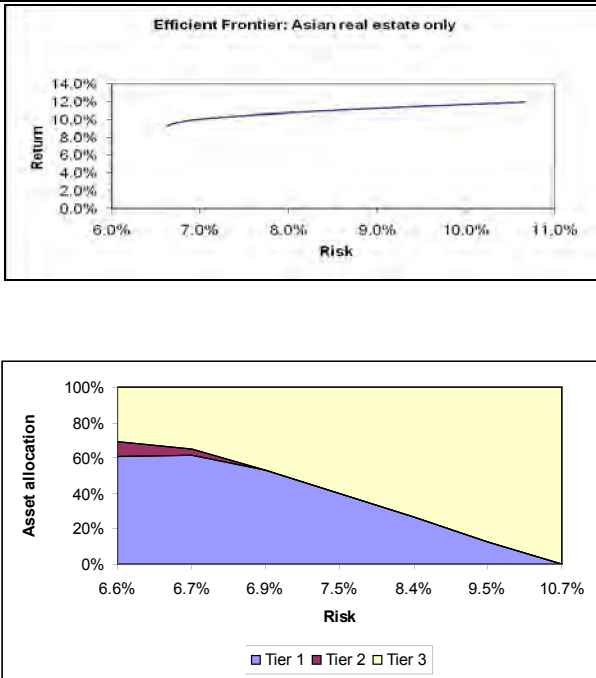


Table 7: Return, risk and tier components from efficient frontier

Return	Risk	Portfolio components		
		Tier 1	Tier 2	Tier 3
9.3%	6.6%	61%	8%	31%
9.5%	6.7%	61%	4%	35%
10.0%	6.9%	53%	0%	47%
10.5%	7.5%	40%	0%	60%
11.0%	8.4%	26%	0%	74%
11.5%	9.5%	13%	0%	87%
12.0%	10.7%	0%	0%	100%

The impact of the GFC: sub-period performance analysis

To assess the impact of changing economic fundamentals on investment performance, Tables 8 and 9 present the performance of the 3 tiers over the two sub-periods of Jan. 1999 – Jun. 2007 and Jul. 2007 – Dec. 2009 respectively. During the sub-period of Jan. 1999 – Jun. 2007, tier 3 outperformed both tier 1 and 2 (14.30%, 10.80%, 18.93% for tier 1, 2 and 3 respectively). On a risk-adjusted basis, the same rank order was seen, with tier 3 marginally outperforming tier 1 (Sharpe ratio = 0.50 versus 0.49). Tier 2 delivered the lowest risk-adjusted return (Sharpe ratio = 0.28).

However, the impact of the GFC has made all the tiers fall. Particularly during the period of Jul. 2007 – Dec. 2009, tier 2 showed the smallest loss of -6.29%, with tier 3 loss at -7.53% and tier 1 at -9.75%. The ranking on a risk-adjusted basis among the three tiers remains unchanged (-0.13; -0.17; -0.29 for tier 2, 3, 1 respectively).

To assess the dynamic change due to the impact of the GFC on the diversification benefits, Table 10 presents the changing in correlations before and after the GFC. Tiers 1-3 saw stable diversification benefit with the GFC (0.15→0.14) which coincidentally saw the initial presence of Vietnam in tier 3 in this period. The correlations in pairs saw a slight loss of diversification benefits over time of tiers 2-3 (0.13 → 0.17), being less significant than that seen for tiers 1-2 (0.43 → 0.78). This

implies stability in portfolio diversification benefits for tier 3 during the GFC, compared to the loss of diversification benefits for tier 1-2.

Table 8: Risk-adjusted returns performance: Jan.1999 – Jun. 2007

	Tier 1	Tier 2	Tier 3
An. return	14.30%	10.80%	18.93% 16.02*
An. risk	22.08%	26.85%	31.17% 24.04%*
Sharpe ratio	0.49	0.28	0.50 0.53*

*: Tier 3 excludes Sri Lanka and Vietnam

Table 9: Risk-adjusted returns performance: Jul. 2007 – Dec. 2009

	Tier 1	Tier 2	Tier 3
An. return	-9.75%	-6.29%	-7.53% -11.22%*
An. risk	38.80%	57.91%	52.96% 52.62%*
Sharpe ratio	-0.29	-0.13	-0.17 -0.24*

*: Tier 3 excludes Sri Lanka and Vietnam

To more fully assess the impact of the GFC on the Asian property investment dynamics over the period of Jan. 1999 – Dec. 2009, a rolling three-year risk is assessed for all property tiers as shown in Figure 6. The risk taken by tier 3 showed a stable level at some 20% p.a. before the occurrence of the GFC, whilst the other two tiers exhibited an initial higher risk level during the period before the GFC. As such, all three tiers showed a successful attempt to control and decrease their risk, with tier 1 taking the lowest risk level.

The common feature of all 3 tiers is the increasing risk from July 2007. The risk in tier 3 started rising since late 2006, whereas tier 2 saw its risk rising later in 2007. It is also noticed that the increasing risk of tier 3 was marked by the addition of a volatile market (Vietnam) and further by the occurrence of the GFC as experienced by the other two tiers.

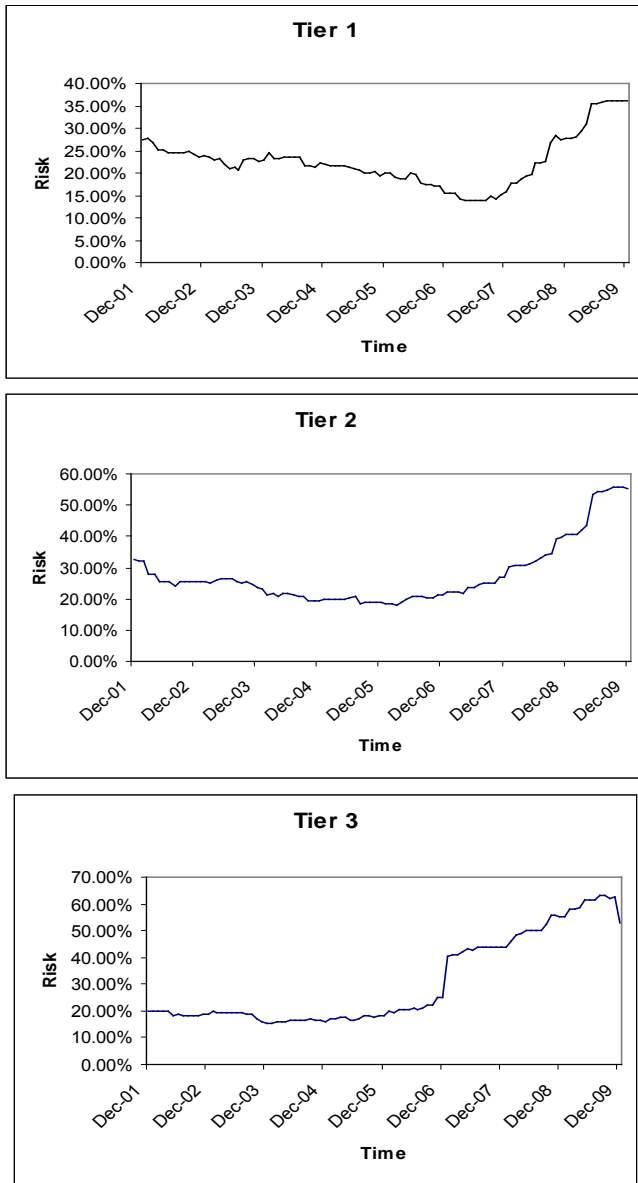
Table 10: Correlation matrix: Jan. 1999 – Jun. 2007 and Jul. 2007 – Dec. 2009

	Tier 1	Tier 2	Tier 3
Panel A: Sub-period Jan. 1999 – Jun. 2007			
Tier 1	1.00		
Tier 2	0.43*	1.00	
Tier 3	0.15 (0.31*)	0.13	1.00
Panel B: Sub-period Jul. 2007 – Dec. 2009			
Tier 1	1.00		
Tier 2	0.78*	1.00	
Tier 3	0.14 (0.85*)	0.17	1.00

*: significant correlation (P<5%)

(): Correlations with tier 3 excluding Sri Lanka and Vietnam

Figure 6: Three-year rolling risk: Jan. 1999 – Dec. 2009



Tier 3-only performance analysis

Given the least emerging markets with higher volatility (eg: Vietnam and Sri Lanka) whilst the others have improved their situations, the tier-3 property markets have been receiving more attention from the regional and international investors in recent years. This section will discuss the tier 3 performance from the data presented in this study.

Located in a dynamic and fast growing region, the lesser emerging markets have motivation or pressure to grow and develop constantly in terms of both market size and maturity. It is noticed that the lesser emerging tier did not only outperform tiers 1 and 2, but also outperformed itself when excluding Sri Lanka and Vietnam on both absolute annual return and risk-adjusted basis. This indicates the outperformance has come from the less developed countries over the observed period of time. From the perspective of the Asian investors, there are also diversification benefits from investing in an Asian property-only portfolio, evidenced by the significant value-adding role of tier 3 in diversified portfolios.

The performance of tier 3 with and without Sri Lanka and Vietnam in the sub-periods of before and after the GFC shed light into the progress of this tier across time with some even emerging stronger after the crisis. It is worth noticing that Vietnam and Sri Lanka are at the bottom of the Asian property markets in terms of property market transparency and global competitiveness. In the first sub-period, the tier 3 excluding Sri Lanka and Vietnam showed less absolute annual return than it did when including these two countries. During the GFC period, the improved performance of tier 3 has reversed. The tier 3 including Sri Lanka and Vietnam suffered less loss on both absolute returns and risk-adjusted basis than that excluding Sri Lanka and Vietnam. This also indicates Vietnam and Sri Lanka were highly volatile and underperformed during the post-GFC period.

The best performance of tier 3 may be coming from the outperformance of some major individual countries, especially when the tier index is weighted on market cap. This is further evidenced by four tier-3 countries being in the top 5 best performers in the return-to-risk ratios in both local currency and US Dollars and only one in the bottom 5 underperformers. On the other hand, the explanation for the best performance of tier 3, may also come from the low correlation coefficients among the individual countries of tier 3, as opposed to the countries of the other 2 tiers. This can be inferred intuitively, since the tier 3 countries are lesser emerging in Asia and thus are more isolated from each other compared to the established markets.

However, uncertainty is still a common feature in tier 3. A downside risk context reduced the attractiveness of tier 3 due to high volatility, firmly evidenced that tier 1 is still at the superior rank. Furthermore, currency depreciation in almost all tier-3 countries is also a concern. Only China saw its currency appreciate during the observed period. Although the impact of currency depreciation is marginal with the

exception of the Philippines, exchange rate hedging should be paid proper attention while investing in these lesser emerging markets.

PROPERTY IMPLICATIONS AND CONCLUSIONS

This study has presented analysis and assessment performance of Asian property in terms of tiers according to individual market maturities and risks over the period of Jan. 1999 – Dec. 2009. 13 Asian property markets are categorised into 3 tiers, with tier 1 (Japan, Hong Kong, Singapore) being the developed markets, tier 2 (Malaysia, Korea, Taiwan, Thailand) the emerging markets and tier 3 (China, India, Indonesia, Philippines, Sri Lanka, Vietnam) the lesser emerging markets.

With the weighted-market cap tier indices built from these 13 Asian property markets, this study has provided a measurement method of property investment performance among 3 levels of market maturities in Asia. Under this measure, the study found that the lesser emerging market tier was best performed over the period of Jan. 1999 – Dec. 2009, with the developed market tier marginally underperforming tier 3. Tier 2 showed the lowest performance over this period.

The overall study concludes that from the various backgrounds and different levels of maturity and growth rate, all the Asian property markets are significantly growing and moving toward a region-wide market. Investing in tier 1 to enjoy a stable and established market tier or taking risk to invest in a lesser emerging market tier depends on a bundle of investment strategies and objectives combining with individual skills of selecting market(s) from specific tier(s) to not only outperform the average tier index, but also outperform the investment benchmark. It is also worth keeping in mind that this performance is based on the US Dollar conversion directly from which no exchange rate hedging is employed. When investors have currency hedging tools, the optimal investment may boost further returns with tier-3 countries where currency depreciation is witnessed.

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