

Zeppelin's

Real Estate Tech

2Q 2006: A Real Estate Newsletter by Zeppelin Real Estate Analysis Limited
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There are 3 REITS to date and more are expected to come according to market experts. The current 3 collectively have to do with income producing retail and office properties in Hong Kong and Mainland China. Meanwhile, Grade A office rents continue to soar and many multinationals and publicly listed groups seem on an operational expansion mode, perhaps taking advantage of China prospects including the many IPO to be. There are also discussions on what frequency and format the government should sell or make available land and many real estate developers have been focusing on acquiring older properties in selected neighborhoods for residential redevelopment. Real estate prices are generally still going strong.

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We would also like to hear from prospective readers / writers who wish to share their real estate experience with us.

This quarterly (generally published in January, April, July and October) newsletter is circulated freely via email to over thousands of readers comprising real estate developers, investors, fund managers, financiers, owners, users, top executives, senior managers, prominent academics and related professionals from Hong Kong and abroad. Our content is / has also been published in newspapers and web portals such as [China Daily](#), [Hong Kong Economic Journal](#) (a Chinese daily), [21st Century Business Herald](#) (China), [The Standard](#) (a Hong Kong English Daily), [MITCRE Alumni Newsletter](#), the [Surveying Newsletter](#) of the Hong Kong Institute of Surveyors, [Centanet.com](#), [Netvigator.com](#), [Hongkong.com](#), [E-finet.com](#), [Red-dots.com](#), [Realtradex.com](#), [FrogPondGroup.com](#), [lcofox.com](#), [PacificProperties.net](#), [Soufun.com](#) and [House18.com](#). We had also been quoted in the [Asian Wall Street Journal](#) and interviewed by [Radio Hong Kong](#). We also publish monthly articles and analyses in the months in between. This newsletter is now into its [11th year](#) and [39th issue](#).

We also operate a website www.real-estate-tech.com through which we intend to share some of our real estate knowledge and ideas with interested parties. There are close to 1,000 content items, in English or Chinese, including analyses, articles, charts, and tables, plus spreadsheets, tutorials, e-books, and the like, the majority of which is free with some requiring a token fee. The website is regularly visited by thousands from all over the world and should be of interest to people interested in China real estate markets.

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USA Real Estate: Return Performance Comparison between Sectors

Real Estate Tech, 2Q 2006

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We have collected and assembled some data and statistics on 4 main sectors of the USA real estate market, namely residential apartment, office, retail, and industrial, and we have compared their relative performances. First, a few notes and assumptions:

- 1) **Sources of data and statistics** = mainly from published sources including market reports, professional journals, and related websites, though the ones presented herein are derived mainly from this webpage representing a joint effort between the National Council of Real Estate Investment Fiduciaries (NCREIF) and the Massachusetts Institute of Technology-Center for Real Estate (MITCRE)
<http://web.mit.edu/cre/research/credl/tbi.html#2>
- 2) **Time period** = from the 1st quarter of 1994 to the 4th quarter of 2005
- 3) **Index-based** = the NCREIF Property Indexes (NPI for short) are adopted and developed into Transaction-Based Indexes which are hedonic in nature. These are further categorized into price, demand, supply, and total return. These indexes track the performance of commercial real estate.
- 4) **Comparisons are done** = between the 4 real estate sectors (residential apartment, office, retail, and industrial) and the 4 index categories (price, demand, supply, and total return)

Here are some interesting results and useful observations:

- A) **From 1994 to 2005** = the correlations between the real estate sectors are generally quite high in each of the index categories (except in the supply category between the office and retail sectors but still the correlation is not insignificant), and so are the correlations between the index categories in each of the real estate sector

Price Index Correlations between Sectors:

		<u>R</u>	<u>R²</u>
Apartment	Office	0.9665	0.93
Apartment	Retail	0.9020	0.81
Apartment	Industrial	0.9786	0.96
Office	Retail	0.8357	0.70
Office	Industrial	0.9535	0.91
Retail	Industrial	0.9181	0.84

Demand Index Correlations between Sectors:

		<u>R</u>	<u>R²</u>
Apartment	Office	0.9547	0.91
Apartment	Retail	0.9049	0.82
Apartment	Industrial	0.9744	0.95
Office	Retail	0.8698	0.76
Office	Industrial	0.9492	0.90
Retail	Industrial	0.9270	0.86

Supply Index Correlations between Sectors:

		<u>R</u>	<u>R²</u>
Apartment	Office	0.9536	0.91
Apartment	Retail	0.8539	0.73
Apartment	Industrial	0.9722	0.95
Office	Retail	0.7369	0.54
Office	Industrial	0.9311	0.87
Retail	Industrial	0.8750	0.77

Return Index Correlations between Sectors:

		<u>R</u>	<u>R²</u>
Apartment	Office	0.9926	0.99
Apartment	Retail	0.9688	0.94
Apartment	Industrial	0.9916	0.98
Office	Retail	0.9537	0.91
Office	Industrial	0.9873	0.97
Retail	Industrial	0.9773	0.96

Index Correlations within Apartment Sector:

		<u>R</u>	<u>R²</u>
Price	Demand	0.9973	0.99
Price	Supply	0.9959	0.99
Price	Return	0.9883	0.98
Demand	Supply	0.9865	0.97
Demand	Return	0.9816	0.96
Supply	Return	0.9893	0.98

Index Correlations within Office Sector:

		<u>R</u>	<u>R²</u>
Price	Demand	0.9863	0.97
Price	Supply	0.9821	0.96
Price	Return	0.9654	0.93
Demand	Supply	0.9376	0.88
Demand	Return	0.9405	0.88
Supply	Return	0.9613	0.92

Index Correlations within Retail Sector:

		<u>R</u>	<u>R²</u>
Price	Demand	0.9869	0.97
Price	Supply	0.9782	0.96
Price	Return	0.9768	0.95
Demand	Supply	0.9320	0.87
Demand	Return	0.9687	0.94
Supply	Return	0.9479	0.90

Index Correlations within Industrial Sector:			
		<u>R</u>	<u>R2</u>
Price	Demand	0.9892	0.98
Price	Supply	0.9890	0.98
Price	Return	0.9858	0.97
Demand	Supply	0.9566	0.92
Demand	Return	0.9680	0.94
Supply	Return	0.9824	0.97

B) **From 1994 to 1999 inclusive** = we have out of curiosity sought to see if there will be any major differences in correlations IF the study period is divided into two equal halves i.e. 6 years each which more or less coincide with the high-tech boom and bust era. The correlations are just as high except for the supply category between the retail and other sectors, which correlations are low or insignificant

Price Index Correlations between Sectors:

		<u>R</u>	<u>R2</u>
Apartment	Office	0.9730	0.95
Apartment	Retail	0.8743	0.76
Apartment	Industrial	0.9769	0.95
Office	Retail	0.8978	0.81
Office	Industrial	0.9726	0.95
Retail	Industrial	0.8454	0.71

Demand Index Correlations between Sectors:

		<u>R</u>	<u>R2</u>
Apartment	Office	0.9734	0.95
Apartment	Retail	0.9140	0.84
Apartment	Industrial	0.9791	0.96
Office	Retail	0.9162	0.84
Office	Industrial	0.9598	0.92
Retail	Industrial	0.8986	0.81

Supply Index Correlations between Sectors:

		<u>R</u>	<u>R2</u>
Apartment	Office	0.9524	0.91
Apartment	Retail	0.4480	0.20
Apartment	Industrial	0.9438	0.89
Office	Retail	0.5665	0.32
Office	Industrial	0.9536	0.91
Retail	Industrial	0.4723	0.22

Return Index Correlations between Sectors:

		<u>R</u>	<u>R2</u>
Apartment	Office	0.9887	0.98
Apartment	Retail	0.9733	0.95
Apartment	Industrial	0.9942	0.99
Office	Retail	0.9779	0.96
Office	Industrial	0.9899	0.98
Retail	Industrial	0.9685	0.94

Index Correlations within Apartment Sector:			
		<u>R</u>	<u>R²</u>
Price	Demand	0.9955	0.99
Price	Supply	0.9914	0.98
Price	Return	0.9923	0.98
Demand	Supply	0.9744	0.95
Demand	Return	0.9845	0.97
Supply	Return	0.9884	0.98

Index Correlations within Office Sector:			
		<u>R</u>	<u>R²</u>
Price	Demand	0.9900	0.98
Price	Supply	0.9851	0.97
Price	Return	0.9941	0.99
Demand	Supply	0.9510	0.90
Demand	Return	0.9835	0.97
Supply	Return	0.9795	0.96

Index Correlations within Retail Sector:			
		<u>R</u>	<u>R²</u>
Price	Demand	0.9526	0.91
Price	Supply	0.6959	0.48
Price	Return	0.9533	0.91
Demand	Supply	0.4452	0.20
Demand	Return	0.9451	0.89
Supply	Return	0.5713	0.33

Index Correlations within Industrial Sector:			
		<u>R</u>	<u>R²</u>
Price	Demand	0.9832	0.97
Price	Supply	0.9675	0.94
Price	Return	0.9846	0.97
Demand	Supply	0.9052	0.82
Demand	Return	0.9623	0.93
Supply	Return	0.9599	0.92

C) **From 2000 to 2005 inclusive** = as in the 1994 to 1999 period, the correlations are high and this time, even the retail sector does not show a particular or opposite trend

Price Index Correlations between Sectors:			
		<u>R</u>	<u>R²</u>
Apartment	Office	0.9543	0.91
Apartment	Retail	0.9521	0.91
Apartment	Industrial	0.9453	0.89
Office	Retail	0.9266	0.86
Office	Industrial	0.9394	0.88
Retail	Industrial	0.9632	0.93

Demand Index Correlations between Sectors:

		<u>R</u>	<u>R2</u>
Apartment	Office	0.9342	0.87
Apartment	Retail	0.9116	0.83
Apartment	Industrial	0.9365	0.88
Office	Retail	0.8863	0.79
Office	Industrial	0.9142	0.84
Retail	Industrial	0.9509	0.90

Supply Index Correlations between Sectors:

		<u>R</u>	<u>R2</u>
Apartment	Office	0.9238	0.85
Apartment	Retail	0.9533	0.91
Apartment	Industrial	0.9415	0.89
Office	Retail	0.8904	0.79
Office	Industrial	0.9074	0.82
Retail	Industrial	0.9372	0.88

Return Index Correlations between Sectors:

		<u>R</u>	<u>R2</u>
Apartment	Office	0.9883	0.98
Apartment	Retail	0.9808	0.96
Apartment	Industrial	0.9750	0.95
Office	Retail	0.9846	0.97
Office	Industrial	0.9813	0.96
Retail	Industrial	0.9889	0.98

Index Correlations within Apartment Sector:

		<u>R</u>	<u>R2</u>
Price	Demand	0.9947	0.99
Price	Supply	0.9911	0.98
Price	Return	0.9838	0.97
Demand	Supply	0.9723	0.95
Demand	Return	0.9727	0.95
Supply	Return	0.9821	0.96

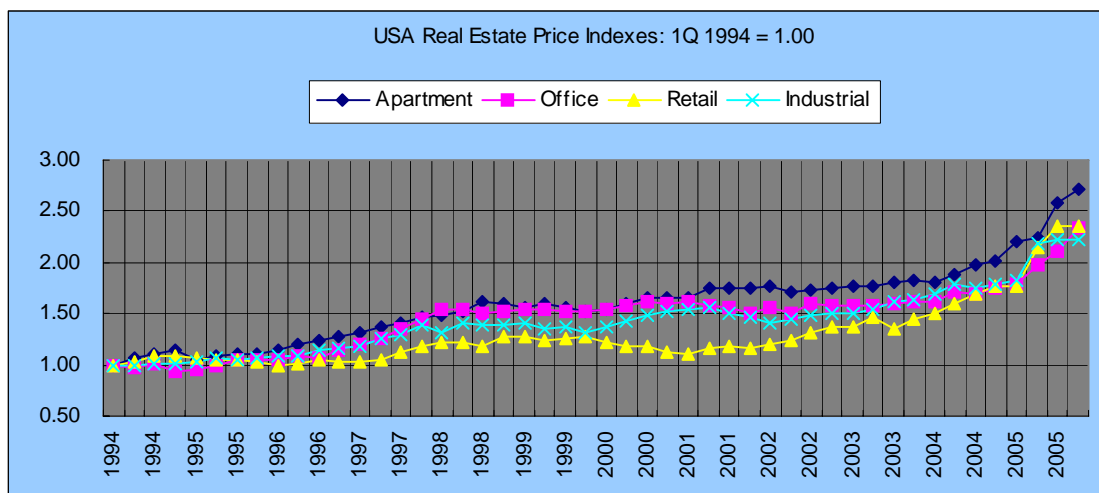
Index Correlations within Office Sector:

		<u>R</u>	<u>R2</u>
Price	Demand	0.9865	0.97
Price	Supply	0.9573	0.92
Price	Return	0.9444	0.89
Demand	Supply	0.8970	0.80
Demand	Return	0.9275	0.86
Supply	Return	0.9099	0.83

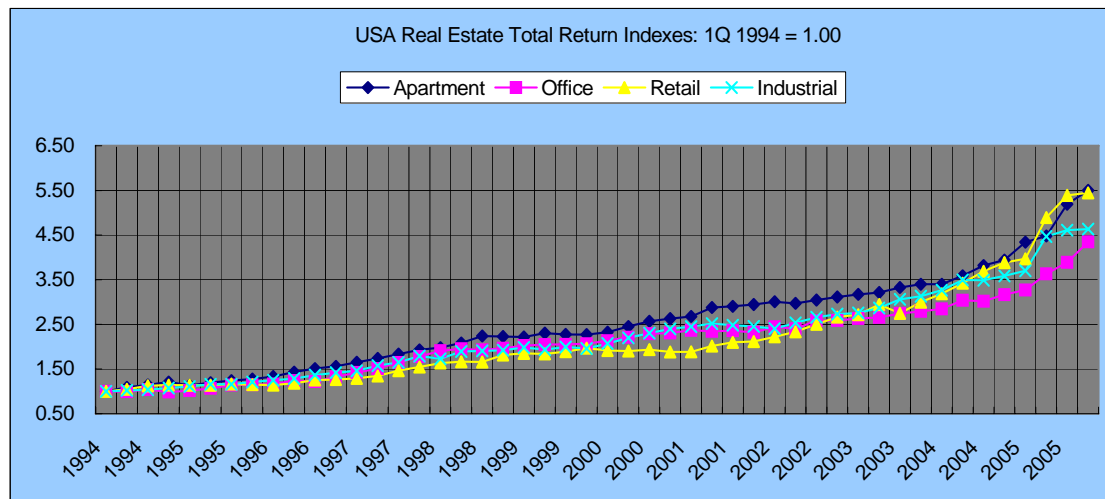
Index Correlations within Retail Sector:			
		<u>R</u>	<u>R2</u>
Price	Demand	0.9897	0.98
Price	Supply	0.9866	0.97
Price	Return	0.9939	0.99
Demand	Supply	0.9531	0.91
Demand	Return	0.9901	0.98
Supply	Return	0.9727	0.95

Index Correlations within Industrial Sector:			
		<u>R</u>	<u>R2</u>
Price	Demand	0.9848	0.97
Price	Supply	0.9828	0.97
Price	Return	0.9789	0.96
Demand	Supply	0.9358	0.88
Demand	Return	0.9693	0.94
Supply	Return	0.9568	0.92

- D) **On a macro level, there is no point in diversifying a real estate investment portfolio among these 4 main USA real estate sectors** = as they tend to move up in price and return very much in tandem, though this trend can also mean knowing the performance of one sector equals knowing all the others. Perhaps there could be less / lower correlations if one looks deeper into each market (city) and its sectors and / or consider shorter investment timeframes for the risk-reduction minded, though this would be out of the scope of this article
- E) **Price appreciation** = using the 1Q 1994 figure as the start point of 1.00 for each real estate sector, residential apartment offered the best price performance, delivering approximately a 172% accumulative price appreciation from 1994 to 2005. This is followed by the office and retail sectors, with 134% and 135% respectively. The poorest among the 4 sectors is industrial, trailing with 122%.



F) **Total return** = again using the 1Q 1994 figure as the start point of 1.00 for each real estate sector, residential apartment offered the best total return performance, though this time not by a significant lead over the others as in the price appreciation comparison. It delivered approximately 450% and is fiercely contested by the retail sector with approximately 445%. These two sectors are way above the office and industrial sectors with their 335% and 363% respectively. Total return would include recurrent income such as rents.



G) **The residential apartment sector seems more price appreciation dependent in its return composition while the retail sector may depend more on recurrent income to make up its return** = this can be seen by the fact that although the residential apartment leads the pack in terms of price appreciation, it is almost caught up by the retail sector when total return is taken into account. From another angle, while the retail sector performed no better than the office sector in terms of price appreciation (135% versus 134% respectively), its non-price-appreciation return enabled it to surpass the office sector by a wide margin.

Please note the above are based on real estate transactions and investments made mainly by investors and fund groups and thus may not be reflective of the domestic market such as the residential home (owner) sector.

In summary, while it may make sense for an overseas (non-USA) investor to go into the USA real estate market to diversify its investment portfolio back home (assuming such overseas markets and assets do not correlate much with USA real estate), spreading a USA real estate investment portfolio among the sectors helps not in terms of investment risk reduction. It only spreads the portfolio thin.

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Hong Kong Fund Scene: Strong Stronger, Weak Weaker

Real Estate Tech, 2Q 2006

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While researching some data for clients, your humble author came across the website of the Hong Kong Investment Funds Association (HKIFA) and found some information which might be of interest to readers. First, a few basics:

- A) **Information source** = mainly the website of the HKIFA as below
<http://www.hkifa.com.hk/eng/index.aspx>
- B) **Authorized funds** = there is a total of 1,778 funds with a market capitalization of around US\$551B as of March 2005
- C) **Fund categories** = there are various categories and subcategories, yet the major ones are concerned with equities, bonds, and money markets, and these 3 categories already account for close to 88% of the market cap
- D) **Around 1/3 of the capital is sourced from Hong Kong** = of the above mentioned market cap, according to another document done by the Securities and Futures Commission (SFC)

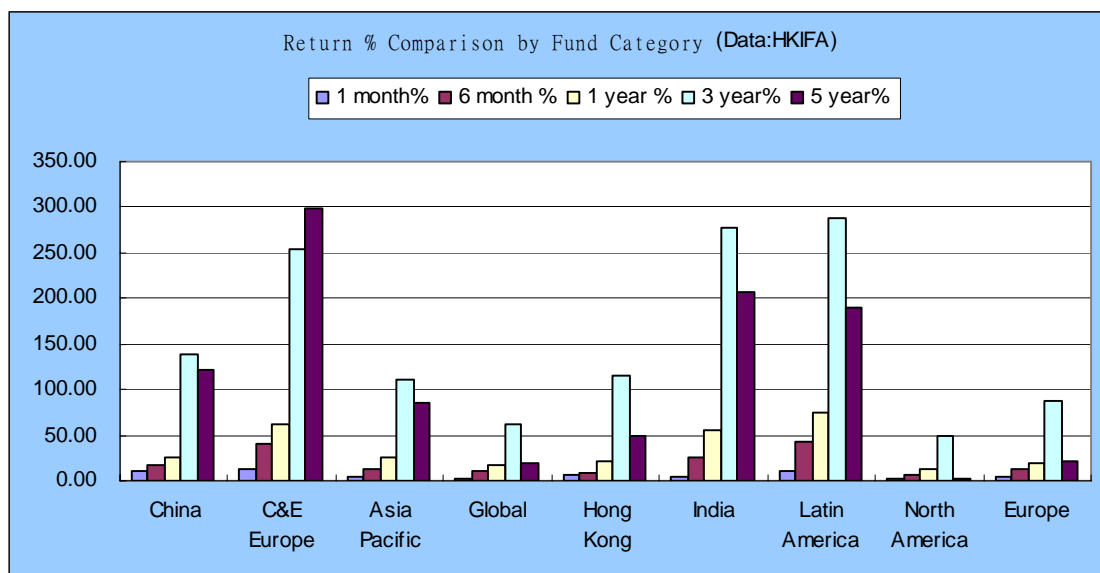
Here are several observations (based on the weekly performance chart as of January 20, 2006 published in the HKIFA website):

- E) **The chart reported fund performances** (by subcategories, see below) or their % changes (+ or -) in periods of 1 month, 6 months, 1 year, 3 years, and 5 years
- F) **The chart categorized the funds into subcategories** e.g. under equities, there could be Asia, China, India, Europe, Central & Eastern Europe and so on
- G) For each performance period, we selected **the best 3 and the worst 3** for ease of reference
- H) **Consistently good performer goes to Central & Eastern European Equities** = not only did it score in the top 3 positions in every performance period, it provided the best return averaging close to 300% return if one had invested in it since 5 years ago
- I) **Latin America and India Equities also did well in the last 1 to 3 years** = averaging within 270% to 290% at the end of the past 3 years
- J) **Korea and Thailand did very well if invested in them 5 years ago** = though recent performances did not make the top 3 spots
- K) **China, Japan, and Warrants & Derivatives did well in the most recent times** = i.e. performance periods of 1 year or less

Not being fund or financial experts, we nonetheless ran some calculations and correlations and these are some rough hypotheses:

- L) **Fund categories that do well in 1 year or less may tend to do well in the next 2 to 3 years** = based on correlations of such performance figures in different periods of 3 years or less and the R2s appear significant at 0.70 or higher
- M) **Fund categories that do well in 3 years may also tend to do well in the next 2 years (i.e. 5 years in total)** = though the correlation, while still matters, is comparatively lower at around 0.55
- N) **But fund categories that do well in year 1 bear little relation to fund categories that do well after 5 years** = and the correlation is only around 0.33
- O) **Fund sizes or scales have no relation to the fund category performances** = in short, just having lots of money invested in a sector or many investors alone do not ensure investment success (or failure for that matter)
- P) **Starting 3 years ago would be best IF one invests in a blanket manner** = i.e. invests in all fund subcategories based on their relative sizes, then one would have reaped around 18% at the end of 1 year, 89% at the end of 3 years, and 63% at the end of 5 years. On a compounded basis, the 3 year scenario offers 23% while the 5 year scenario provides only around 10%. In short, investment timing seems more important than just investing long term
- Q) **Return / Volatility** = we have also divided the year 3 return by the year 3 volatility value seeking to see what return was achieved for every unit of volatility, sort of a return-risk ratio. Overall, at the end of year 3, it appears investments in the equities of emerging economies were the best options, while fixed income offered the lowest return per risk unit.

Stating the obvious, the above only reports what have occurred in the past, it does not project into or predict about the future, whether written, implied, or otherwise.



Correlations between:		R2
Fund size %	5 year performance	0.01
Fund size %	3 year performance	0.00
Fund size %	1 year performance	0.00
Fund size %	0.5 year performance	0.00
5 year performance	3 year performance	0.55
5 year performance	1 year performance	0.33
5 year performance	0.5 year performance	0.34
5 year performance	Year to date	0.25
3 year performance	1 year performance	0.70
3 year performance	0.5 year performance	0.66
3 year performance	Year to date	0.40
1 year performance	0.5 year performance	0.78
1 year performance	Year to date	0.23
0.5 year performance	Year to date	0.22

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Hong Kong: Good Track-Record Properties Give No Investment Guarantee Real Estate Tech, 2Q 2006

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We intend to address 2 broad questions which many readers and real estate investors may have on residential real estate investment:

- A) Does relatively lower price volatility imply or bring a relatively stronger resistance to price reduction (or relatively better price sustaining-recovering power) when the market turns sour?
- B) Does comparatively better past price (increase) performance of a residential complex (or property) imply a higher chance of having comparatively better price performance in future as well?

Having applied some simple data and analyses, the preliminary answers to both questions are "No" i.e. lower price volatility does not imply better price recovery and better past price performance does not necessarily mean a better future price performance. Before we dwell into the details, a **few assumptions and notes** as follows:

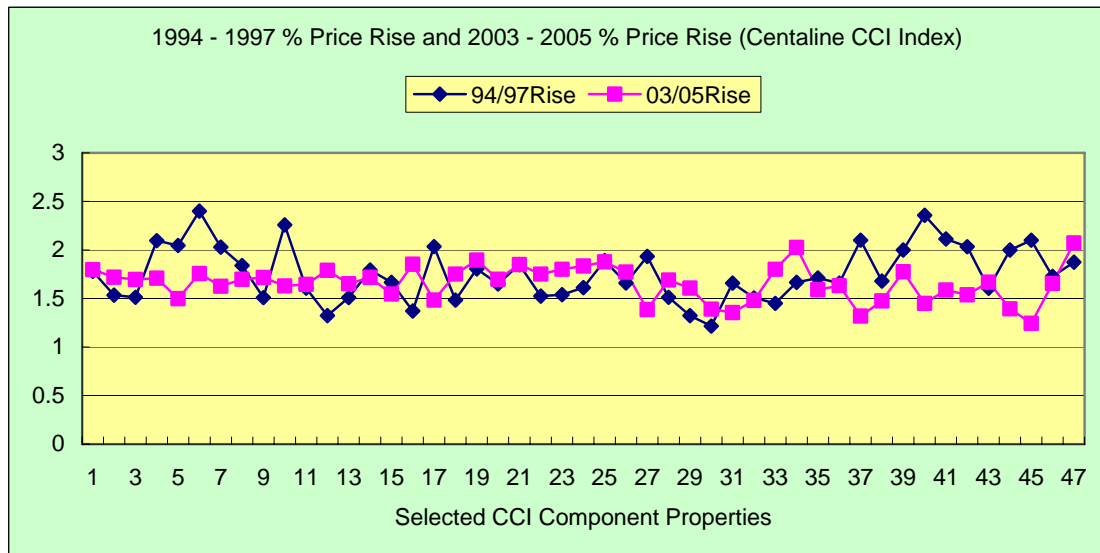
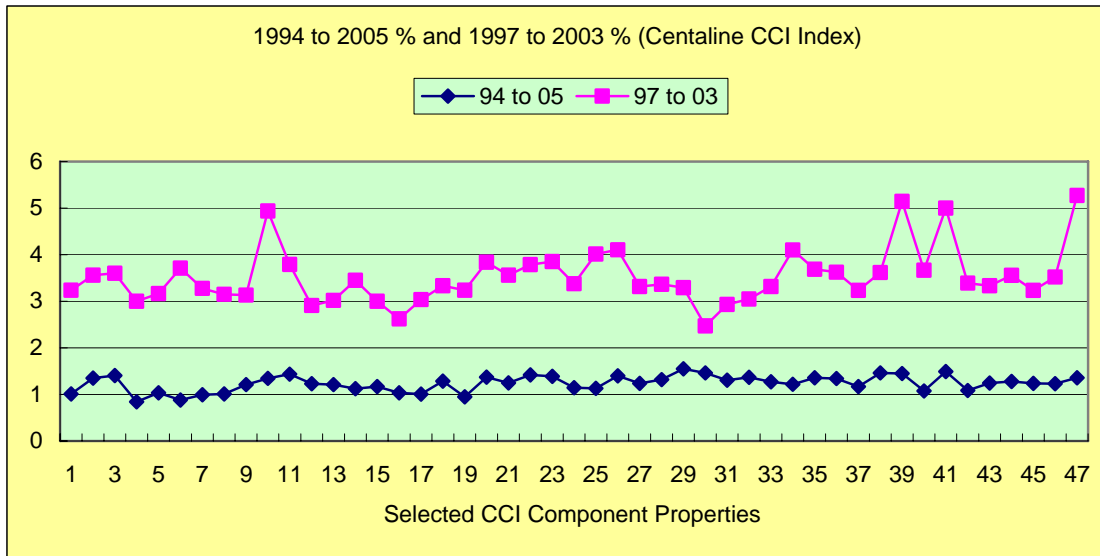
- 1) Centaline's CCI Index = the data comes mainly from selected component residential complexes which make up the CCI and such complexes are located across the whole of Hong Kong from Hong Kong Island and Kowloon to the New Territories East and West regions. The index range used herein dates from 1994 to 2005 and price data is on a price per gross floor area (HK\$ / ft²) basis.
- 2) Key Focuses = the basic real estate story for Hong Kong in the past 12 years is that prices rose from early 1990s to 1997 from which a close to 70% price drop was effected until 2003, when the market recovered and has been recovering since. Hence, we shall focus on 4 of these 12 years, namely 1994 (the earliest year in the CCI), 1997, 2003, and 2005.

Here are some of the **observations and findings**:

- a) Most (selected component) residential complexes have not reached back to their 1994 price level at the end of 2005 = and the 1994 price (per gross floor area) level is generally still some 10% to 50% above the 2005 level. There are a few exceptions which 2005 price levels have exceeded their 1994 ones and these properties are all on Hong Kong Island. Nonetheless, we have not explored whether this is a coincidence or there is a reason for it.
- b) The 1997 peak price levels for most residential complexes are on average 3 to 3.50 times that of the 2003 troughs = with a few venturing into the 4 times and 5 times ranges and all of these are on New Territories West. There are also a few residential complexes which 1997 / 2003 price differentials are less than 3 in the 2.50 times range.
- c) Correlation between the above 2 data sets is low = with the R² being around 0.16 i.e. the volatility as reflected in the 1997 / 2003 fluctuation has little bearing on whether the 1994 price level is exceeded by the 2005 price level or not, and vice versa.
- d) Most residential complexes have seen price increases from 50% to 100% in the 1994 to 1997 period = with a few either exceeding 100% or being lower than 50%, and most of these were located in Hong Kong Island and the New Territories.
- e) Most residential complexes have witnessed price increases from 60% to 80% in the 2003 to 2005 period = with a few performing worse than the typical range and these were all located in the New Territories.

- f) Correlation between these 2 sets of data is even lower = at 0.06 implying that a good price performance (increase) in the 1990s is NO guarantee that its price performance would also be good in the early 21st Century. Using price track records could be misleading.

In summary, if any tip is to be offered, it is probably that **poor performing residential properties continue to under-perform**. While investors may find the above a bit unsettling, as there seem to be no quick and easy investment rules of thumb to follow and better investment sophistication appears called for, this is why we think real estate is fun, exciting, and challenging.



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