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Real Estate Tech

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The last quarter saw a sudden drop in global stock markets beginning with those in China and then there were concerns for the sub-prime mortgage markets in the USA with a few such lenders collapsed or collapsing. These macro level phenomena are best left to experts and economists, while a piece of USA REIT legislation which may affect HK-based REIT adversely has not gained much attention to date. Read our article on it: http://www.real-estate-tech.com/articles/SRS030701.htm.

In this Issue:

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, Icfox.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 **43rd** 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.

Zeppelin Real Estate Analysis Limited is involved in real estate development, investment, and management with a focus on **independent real estate analysis**. Together with Zeppelin Property Development Consultants Limited, we offer services related to real estate asset management [analysis, investment strategy, and portfolio assessment], project management [architectural design, cost control, and contract administration], facility management [facility utility assessment, facility strategy, and building maintenance], and marketing management [campaign coordination, leasing, and sales]. We are part of the Zeppelin Group headquartered in Hong Kong with office operations in Beijing, Shanghai, and Shenzhen and we have access to networks covering China / Asia, North America, and Europe.

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Insights for a Marketable China Real Estate Fund

Real Estate Tech, 2Q 2007

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<I> Background: Your humble author has recently delivered a talk titled "Allocating US$1B into China Real Estate" to MBA candidates from the Business School at the City University of Hong Kong, being an adjunct professor of the said academic department. Prior to the talk, candidates were asked individually to help with a simple survey on how he or she would allocate the US$1B into the various China real estate markets and real estate sectors [technically limited to 10 cities, namely Beijing, Shanghai, Guangzhou, Shenzhen, Tianjin, Chongqing, Wuhan, Nanjing, Hangzhou, and Chengdu, and 3 real estate sectors of residential, office, and retail in the survey]. They could put all US$1B into just 1 city and 1 sector, e.g. Shanghai-Office, or they could spread the US$1B evenly in all 10 cities and 3 sectors, and naturally, any combinations in between these two spectrums. They are not however allowed to put such money into non-real estate assets including cash, bonds, or stocks. Eventually, 46 responses were received and tallied. While not being a rigorously planned and comprehensively covered survey, **the results do offer an indication of what a "marketable" China real estate might or would need to look like** in terms of capital allocation.

Here are the summarized results based on capital allocation:

Hypothetical Allocation of a US$1,000,000,000 China Real Estate Fund					
% of US$1B	Sectors:				
Cities:	Residential	Office	Retail	TOTAL %	
Beijing	9%	8%	4%	21%	
Shanghai	11%	12%	4%	28%	
Guangzhou	5%	3%	4%	12%	Big 4 %:
Shenzhen	5%	3%	5%	13%	74%
Tianjin	3%	1%	1%	5%	
Chongqing	3%	0%	1%	5%	
Wuhan	1%	1%	1%	2%	
Nanjing	1%	1%	1%	3%	
Hangzhou	3%	1%	2%	6%	6 Others %:
Chengdu	3%	1%	1%	5%	26%
TOTAL %	44%	32%	23%	100.00%	100.00%

A few observations can be made:

A) **Collectively as a group (46 candidates who participated in the survey), they have a preference for the Big 4** i.e. Beijing, Shanghai, Guangzhou, and Shenzhen, over the remaining 6 smaller or 2nd tier cities, or 74% to 26% in terms of capital allocated.

B) **Collectively as a group, they have a preference for residential** (44%) real estate to office (32%) and retail (23%) real estate, or for that matter, between office and retail, they appear to prefer office real estate to retail real estate.

C) **Of the Big 4, Shanghai is the popular choice** having attracted 28% of the overall investment (US$1B), and 38% [28% over 74%] of the investment capital allocated for the Big 4.

D) **Of the 6 2nd tier cities, Hangzhou appears to have a slight edge** over the other 5 and Wuhan seems to be the least preferred investment destination.

We have also counted the number of "votes" each city-sector gets, i.e. as long as the survey participant allocates some investment capital into the city-sector, irrespective of the amount being only 1% of US$1B or all 100% of it, 1 vote will be counted. Also, we also counted the number of participants [technically the maximum is 46, i.e. the number of survey participants] who have voted for a city (regardless of which real estate sector or sectors as long as some capital is allocated to the city) AND for a real estate sector (regardless of which city or cities as long as some capital is allocated to the sector).

Here are the summarized results in terms of votes:

Hypothetical Allocation of a US$1,000,000,000 China Real Estate Fund								
No. of votes	Sectors:							
Cities:	Residential	Office	Retail	TOTAL votes	% of TOTAL		No. of participants	% of TOTAL
Beijing	37	36	25	98	17%		44	96%
Shanghai	39	41	27	107	18%		44	96%
Guangzhou	32	20	30	82	14%	Big 4 %:	40	87%
Shenzhen	27	20	28	75	13%	62%	41	89%
Tianjin	25	8	7	40	7%		29	63%
Chongqing	23	7	9	39	7%		25	54%
Wuhan	11	9	6	26	4%		15	33%
Nanjing	15	8	6	29	5%		20	43%
Hangzhou	24	8	13	45	8%	6 Others %:	28	61%
Chengdu	22	8	9	39	7%	38%	27	59%
TOTAL votes	255	165	160	580	100%	100.00%	46	100%
% of TOTAL	44%	28%	28%	100%			Maximum	
No. of participants	45	44	39	46	Maximum			
% of TOTAL	98%	96%	85%	100%				

Again, some observations are made:

1) **Collectively as a group, the votes confirm the participants have preferences for the Big 4** (62%) to the other 6 2nd tier cities (38%). Note however the capital allocation percentages are higher than the vote percentages for the Big 4 and vice versa for the remaining 6 2nd tier cities. This may mean on average, the survey participants have allocated more capital per city to the Big 4 than to the other 6 cities EVEN IF both categories of cities are invested.

2) **Collectively as a group, the votes confirm the affinity for residential real estate**.

3) **Of the 46 survey participants, close to 90% or more of them would select 1 or more of the Big 4 cities,** while the 2nd tier cities could command the investment attention of 2/3 of the survey participants at best. One city, Wuhan, can attract no more than 1/3 of the respondents.

4) **Of the 46 survey participants, 96% or more would have selected a residential or office real estate** in 1 or more of the 10 cities included in the survey. Though a laggard, some 85% of respondents would also invest in retail real estate.

Briefly, as in any bell curve, while the bulk of survey participants would fit into the above descriptions, there were exceptions. For instance, 1 survey participant had invested all US$1B into 1 single city and 1 single sector of that city. In another instance, 1 survey participant had invested equally into all cities and sectors.

<II> The survey participants and marketing insights: are MBA students enrolled in the Business School of the City University of Hong Kong and most have prior working experience and are / are expected to be engaged in managerial and professional executive positions. As such, and notwithstanding the casual nature of the survey, the results are likely to harbor some **"marketing" insight** and utility for investment corporations and real estate groups contemplating a relatively **sizable** China real estate fund (or REIT). Some insights could be:

a) **A marketable China real estate fund needs to invest in (1 or more of) the Big 4 cities**, i.e. it may face quite a challenge in finding sufficient investors and investment capital, retail or institutional, IF the fund only invests in 2nd tier cities and markets.

b) **Likewise, a marketable China real estate fund needs to invest in (some) residential**, Big 4 or otherwise, else the challenge in finding sufficient investment funding and investors could be tremendous.

c) **Shanghai and to a lesser extent Beijing, IF excluded, may be detrimental** to raising investment funds and finding sufficient number of investors.

d) **Wuhan and to a lesser extent Nanjing, IF excluded, may NOT be overly detrimental** to raising investment funds and finding sufficient number of investors.

Do NOTE the above focuses on having a "marketable" China real estate fund (or REIT), defined as one reasonably welcomed and popular among investors, retail and / or institutional. This may or may NOT have any relevance to the investment performance of the said fund because there is always the possibility that some of the most viable (and sometimes these could be aggressive or bold) investment strategies may not be (fully) appreciated by the market and the investors. For instance, a China real estate fund manager may personally wish to invest in just 1 city-sector owing to certain researched and analyzed views, yet unless he or she is willing to go with a much smaller fund, say US$100M instead of US$1B, he or she may have problems finding sufficient investment funding and investors for a US$1B fund IF he or she insists on putting US$1B or even more into the 1 city-sector. In short, the China real estate fund manager has to decide between 1) having his or her way but with very little prospect of managing a fund AND 2) modifying his or her investment strategy to suit a broader market but with better prospect of realizing the funding and setting up the fund.

<III> Investment allocation approaches: Like a mutual fund manager, a (China) real estate fund manager needs to decide on asset allocation. This means having to ponder:

A) WHERE? = Beijing, Shanghai, Shenzhen, Hangzhou, Chengdu…etc?
B) WHAT? = Residential, Office, Retail, Industrial, Hotel… etc?
C) WHEN? = Now? Later? 30% Now? 60% Later?

D) HOW? = Real estate development (building new? Existing or completed properties only? Sole own? Joint venture?

These relate to investment parameters:

1) RETURN targeted? Why this target? Benchmark?
2) RISK tolerated? Volatility? Return to risk ratio?
3) RESOURCE available? US$100M, US$1B, or US$10B? Even more?

Notwithstanding the chance for oversimplifying the issue, here is a rule of thumb chart:

Parameters	**High**	**Low** ***China markets are somewhat correlated**
Return (Rate of) required	Go also for 2nd tier cities, developments	Stick to 1st tier cities, existing properties
Risk accepted	Focus on fewer cities and sectors	Spread across more cities and sectors*
Resource $ deployed	Diversification possible	Diversification less possible

Admittedly, investment asset allocation involves contemplation on the macro level though eventually would have to be realized with actual real estate transactions (acquisitions). On the macro level analysis, **a few investment (assessment) approaches** are commonplace:

a) **Fundamental** = this generally involves looking at economic and demographic data and depending on real estate sectors, may range from GDP per capita, interest rate, unemployment rate etc to household income, trade, service industry portion of GDP, white collar workers etc. This is useful in identifying potential bargains (or non-bargains) yet the fundamentals themselves may change.

b) **Technical** = this generally involves monitoring price movements and transaction volumes, market sentiment, indexes, and the like. This allows a good idea of prices but not necessarily values. Reflexive points are also difficult to fathom.

c) **Highest return** (follow past records) = this simply invests in what has been popular (hot) and / or providing the highest return. Notwithstanding being a no-brainer, it appears to work sometimes especially when a market or sector has just got hot.

d) **Least volatile** = this measures the volatility of price movements or indexes. Given all things being equal, the least volatile asset may not procure a sufficiently attractive return.

e) **Steady growth** = this involves going for investment opportunities which increases (steadily) over time.

We have been performing simple tests on the above approaches (except fundamental) to ascertain their vigor in identifying viable investment options. The process involves collecting a set of past data e.g. 2004 indexes, abstracting certain inclinations from it via applying different investment approaches, and using such abstracted inclinations on the next period e.g. in this case 2005. As there is already a set of 2005 data, we could then compare the technical results with the actual ones. While the results are very preliminary and incomplete, they show some interesting or even promising signs (with both technical and highest return approaches outperforming the overall market averages):

Approaches:	1 year total return	3 years total return
Technical	16%	36%
Highest return%	16%	33%
Least volatile	17%	24%
Steady growth	6%	19%

While the steady growth approach appears to be the least viable approach, the technical (our own model) and the highest return approaches seem to harbor some vitality. Nonetheless, we stress again the above are not yet completed and may only apply to the periods studied i.e. any conclusions or insights drawn may only hold true for the periods studied and not for others, i.e. they could be coincidental. Prospective investors and readers should seek proper advice and consultation prior to making decisions and investments.

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Same Home Price No Matter How You $ per Square Foot It

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In countries such as the USA and Canada, it is customary to indicate the floor area of a residential premises (so too for office, retail, industrial ones) on a net basis, which generally means the inclusion of the full thickness of exterior walls, half of that of interior party walls, and so on, and no deduction for columns. Nor will any common areas be counted. Thus, technically this makes $/floor area ft2 (or square meter m2 in metric scale) comparison on par and if the sample size is big enough, one may start to get a sense of the degree of influence which each aspect of real estate attributes may have on real estate prices (values). For instance, a sample of similarly built properties spread across different locations may offer an insight into (not so much whether) but how location affects prices and the related price gradient across different geographical locations. Alternatively, one may sample prices of high rise condominiums and investigate e.g. if there is a market preference for north, east, south, or west facing, and for that matter any other directional angle in between, units, and if so, by how much.

Nonetheless, this is generally not the floor area basis adopted in Hong Kong, which uses the gross floor area (GFA) as basis. Furthermore, there are at least 2 broad variations of it; 1) GFA used in real estate / building development applications; and 2) GFA used in (most if not all) real estate sales brochures and marketing.

The former GFA in (1) above has clearer rules and guidelines on what floor areas (basically most or all covered floor areas) are counted and what are exempted (e.g. building services rooms not exceeding certain sizes, most parking areas), and if a 10,000 ft2 land lot has a plot ratio (similar to the floor area ratio in North America) of 5, then a maximum 50,000 ft2 of building floor area can be built on it. And if this land lot is sold for $100,000,000, then the land price per building floor area will be $100M / 50K ft2 = $2,000 / ft2.

The latter GFA in (2) above can be quite flexible and real estate developers collectively have included podiums, open air gardens, parking areas, roof gardens, and the like into the equation. How much more (or less) of these are included may have to do with target buyers, market sentiment, sales tactics, project characteristics, financial flows, and the like and could vary developer to developer, and project to project. This means there is always a chance that e.g. a residential unit with a brochure-stated measurement of 1,500 ft2 could have a much smaller (than expected) net floor area, depending on how much ‘common’ areas have been included into the GFA.

This prompts many to deem the developers using numbers-game tactics to somewhat scheme a few bucks more from prospective buyers in the sense that floor areas of units have become bloated in the process. Thus, there have been calls to tighten the GFA rules or changing to the net basis for real estate marketing and sales, thinking this would mean lowering sales prices. Your humble author thinks the current flexibility in sales-marketing GFA does offer developers a leeway to drum up and push sales, yet differs from most who think sales prices would come down via tightening or changing the floor area measurement basis. They are NOT likely to, and here are the reasons:

A) **Home / residential / real estate purchase budget is a relatively FIXED amount** = using home-buying as example, the household is restricted by its accumulated capital, its income, its perception of income or job stability, mortgage rates, mortgage ceilings, family needs (versus wants), and so on. Say a household can afford a HK$5,000,000 home, pushing them into HK$5,250,000 may still be a possibility, but HK$6M would already mean much family hardship, HK$7M bankruptcy, and HK$8M impossibility. Even if one assumes a $Billionaire, and that he or she is buying just because he or she likes the property without regard to market prices, there is still a mental $ ceiling which if exceeded would mean no transaction. This in turn implies all

the developers have done is to testing out these budget ceilings and driving the purchasers to (almost) their uppermost budget limits.

B) **“You want the grapes with twigs and leaves OR you want the grapes without the twigs and leaves”** = a fruit vendor gives you the two foregoing options, with the first option priced at $10 per (kilogram) kg of grapes and the second option $15 per kg. Say you wish to purchase $30 worth of grapes, you get 3 kg via choosing the first option, which comes with twigs and all, and end up eating 2 kg of grapes and throwing away the remaining 1 kg of twigs and leaves. You may go for the second option, and you will get 2 kg but without the twigs and leaves. You can get to eat all of these 2 kg. The developers in Hong Kong are simply opting to sell via the first option, quoting a lower price/ft2 but stuffing the buyers with more ft2 which are not exclusively his or hers. If the developers are regulated to sell using the second option, they will quote higher $/ft2 but fewer ft2 in the process. Yet the total price would remain the same. For prices to be really lowered, and barring reasons related to market, demographics, and economy, it takes one or more major real estate developers (home producers and suppliers) to slash pricings on their own accord. If they are not willing to do it for whatever reasons, switching to tighter GFA measurements or other floor area basis will NOT do the job. The $5M buyer will still need to use $5M to acquire the same residential unit, and the only difference is whether the buyer is buying a quoted 1,500ft2 unit for $3,334/ft2 OR a stated 1,000 ft2 unit for $5,000/ft2.

Either way, the buyer ends up with the same residential unit for the same $5M, though emotionally he or she may feel happier with being quoted one way or the other.

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Hong Kong Residential: Supply and Household Formation Projections

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Your humble author has recently looked at some figures on residential supply and absorption published in a circulation by Knight Frank property professionals in Hong Kong. Portions of the data are as follows:

No. of Units	2002	2003	2004	2005	2006
Completion	31,050	26,400	26,040	17,320	16,580
Take-up	18,240	22,490	31,400	17,450	16,400
Vacant Unit	65,270	68,780	64,250	63,540	62,670

Then he came across a Hong Kong University of Science & Technology 2003 doctoral thesis on household formation by then PhD candidate (a Mr. Jianping Wang) on the web = http://repository.ust.hk/dspace/handle/1783.1/605. The thesis has some 233 pages and your humble author confesses he had not read it in its entirety, nor had he verified the soundness of the mathematical methods or data employed. Nonetheless, on a read-at-your-own-risk basis, your humble author finds the household formation projections quite intriguing. In essence, Mr. Wang had done 3 scenarios based on different degrees of population increases (high, medium, and low) and the households are further categorized in detail. Here are abstracts based on the medium scenario:

#Household Compositions:		*2006-Medium		2016-Medium	
		Percentage%	Households	Percentage%	Households
1 Person		18%	395,937	25%	626,886
1 Generation	Couple Only	12%	260,310	17%	438,820
2 Generations	Couple+C	32%	679,853	26%	669,524
	Mom/Pop+C	18%	378,984	15%	382,984
	P+Couple	6%	136,271	4%	109,895
3 Generations	P+Couple+C	7%	157,516	6%	145,174
	P+Mom/Pop+C	3%	57,084	2%	54,059
Others		4%	80,046	4%	110,403
TOTAL % or Number =		100%	2,146,000	100%	2,538,000

*Projected in 2003 although the latest actual 2006 figure could be a bit higher
#C = child(ren), P = parent

Without having read many of the thesis details, the above projection of increased households appears to relate to changing demographics e.g. lower birthrates and social preferences e.g. marrying late or not at all. **A few salient observations** are listed below:

1) **Some 392,000 households** are to form in the 10 years between 2006 and 2016

2) **Single person and couple only households** are to form the bulk of such new households and thus their percentages out of total households will increase too

3) **The more typical couple or single-spouse households with children** shall remain more or less the same in the 10 years yet their percentages out of total households will decrease

Here are the charts showing the % changes (increases or decreases) and numeric changes (increases or decreases) during the 10 years and on a per annum basis:

Gains / Losses **2006 to 2016**		% + / - 2016 over 2006	New Household Nos.
1 Person		58%	230,949
1 Generation	Couple Only	69%	178,510
2 Generations	Couple+C	-2%	(10,328)
	Mom/Pop+C	1%	4,001
	P+Couple	-19%	(26,376)
3 Generations	P+Couple+C	-8%	(12,343)
	P+Mom/Pop+C	-5%	(3,024)
Others		38%	30,357
TOTAL % or Number =		18%	392,000

Gains / Losses **p.a.** 2006 to 2016		% Of New Households	New Household Nos.
1 Person		59%	23,095
1 Generation	Couple Only	46%	17,851
2 Generations	Couple+C	-3%	(1,033)
	Mom/Pop+C	1%	400
	P+Couple	-7%	(2,638)
3 Generations	P+Couple+C	-3%	(1,234)
	P+Mom/Pop+C	-1%	(302)
Others		8%	3,036
TOTAL % or Number =			39,200

Further observations can be made:

a) **Over the 10 years from 2006 to 2016** = both single person and couple only households will gain close to 60% and 70% while households with parents (i.e. grandparents) shall decline in numbers, though not significantly.

b) **On a per annum basis** = the single person and couple only households form almost all of the new households.

IF one finds these figures by and large in order-of-magnitude and being reflective of things to come, and coupling these with the latest residential supply and vacant stock statistics and assuming these to continue somewhat, then **the implications for the residential real estate development market** may be:

I) **There could be a supply crunch** somewhere down the path from 2006 to 2016, possibly sooner than most envisaged. A rough and quick guesstimate = IF ONLY 18,000 or so units are produced per year and adding the accumulated 63,000 or so units to date, and IF 39,000 new households are to appear per year starting 2007, then 2007 will see (18,000+63,000-39,000=42,000 left), 2008 will see (42,000+18,000-39,000=21,000 left), 2009 will see (21,000+18,000-39,000=0 breakeven), and 2010 will see (0+18,000-39,000=a shortfall of 21,000!). Naturally, the anticipated actual situation is unlikely to follow such straight-path thinking and that both supply and demand vary under the price (market) mechanism. Nonetheless, this helps to put things into perspective.

II) **The typical (newly formed) households will either be singles or couples without kids** and their lifestyles and tastes could be quite different from the typical / traditional families with (grand) parents and children. Observably, this appears to have been noticed by some real estate developers in that recent residential advertisements have portrayed apparently

single (usually good looking) men and women and stress is given to having an exciting clubhouse and neighborhood versus the usual school district.

III) **Instinctively**, some people may feel small residential units will be more demanded. While this could be a reasonable expectation, **yet** singles and couples with good earning powers may actually have more money to spend as they do not need to budget for raising children (they may still need to contribute toward caring for elderly parents though). Naturally this may not imply building 2,000 ft2 or bigger residential flats from now on, yet shoeboxes are unlikely to appeal to them. Gut-feelingly, perhaps 600ft2 minimum and 900 ft2 minimum for singles and couples respectively.

Please note the above is based on the projections from a doctoral thesis done in 2003 and thus readers are recommended to cross-reference such figures with the latest census and sources. Nonetheless, figures aside, the household formation projections do offer food for thought, given that **household formation is one of the components affecting the demand side and thus potentially the prices as well**.

Caution: do note that residential prices are dependent on a host of macro and micro factors other than just household formation i.e. simply having more households formed than residential units supplied does NOT automatically translate into higher prices.

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